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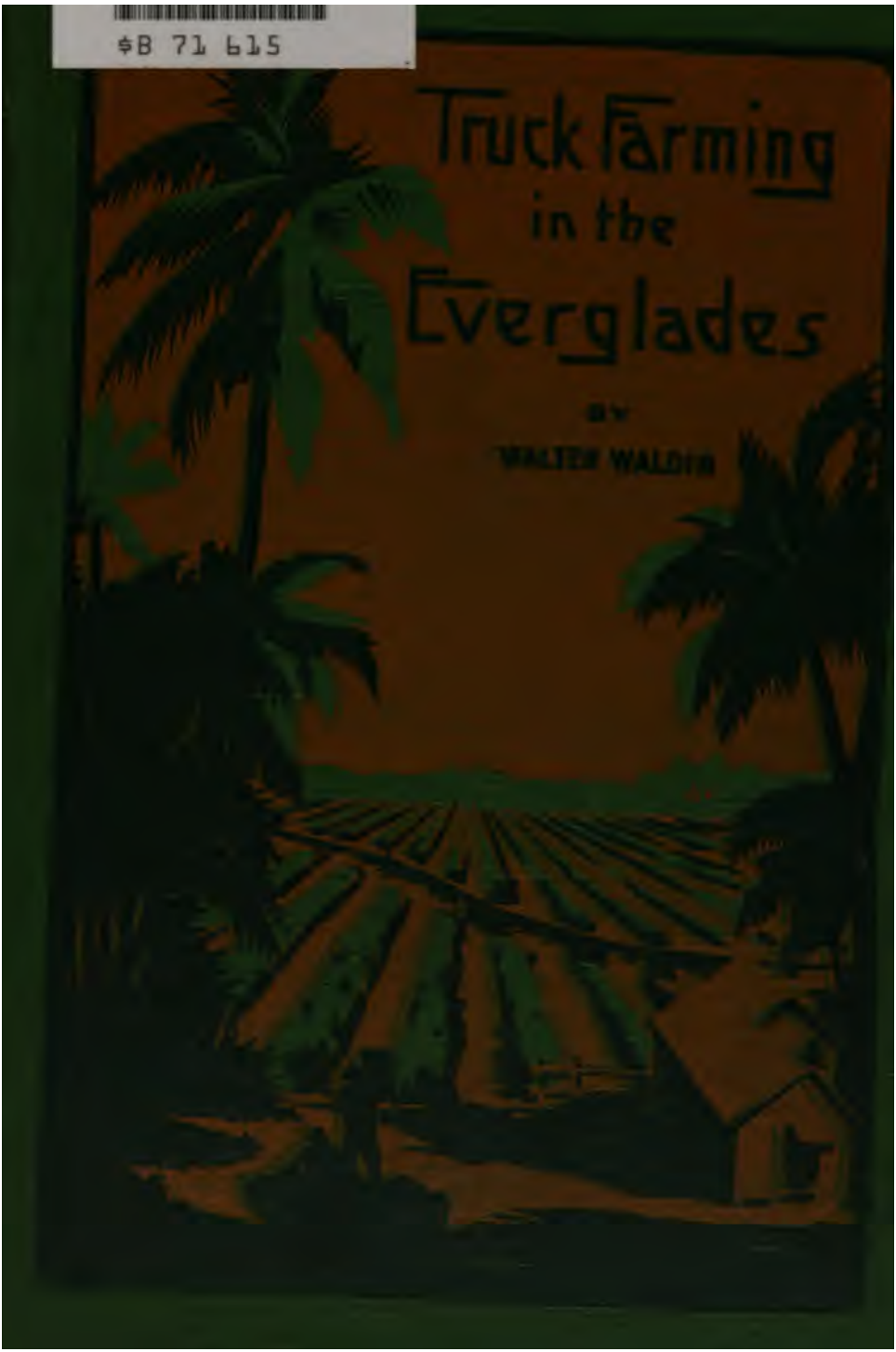
Truck Farming in the Everglades

BY

WALTER WALDIN



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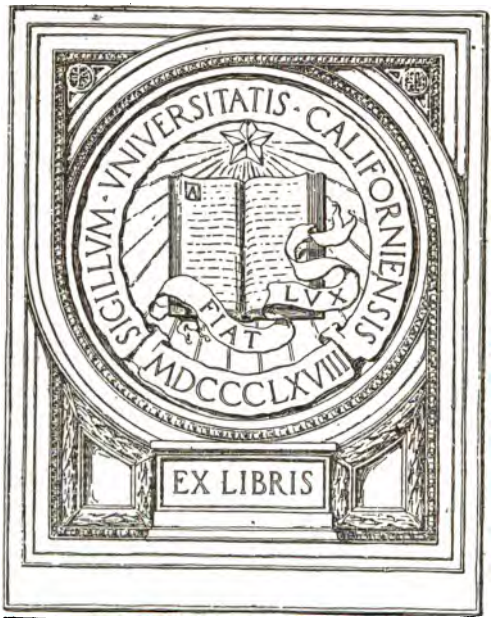

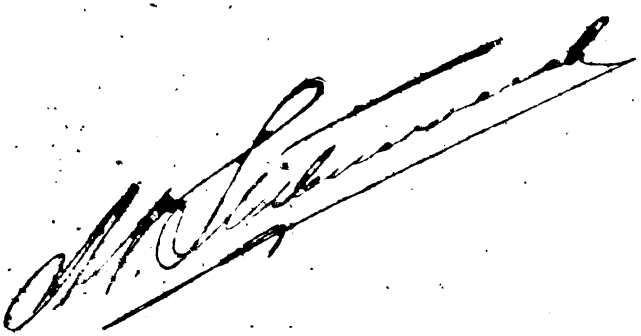

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Truck Farming
IN
The Everglades

By WALTER WALDIN

UNIV. OF CALIFORNIA

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WALTER WALDIN

R. N. A.

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MR. WALDIN'S HOME ON THE EDGE OF THE EVERGLADES.

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CHAPTER I.

TO THE PROSPECTIVE TRUCK GARDENER.

O the city man, living on a salary, often in a dark or stuffy office, always an underling, working in a narrow groove, dependent on today's wages for tomorrow's food, the independent countryman's life must appeal, for he is a free man, master of himself, is conversant with nature in its many moods, enjoys the first fruits of the earth with the gleam still on them, and all its first impulses and pleasures. Often, as we hear country boys, on the threshold of manhood, taunted with being farmers, it makes me feel that the city boy requires training other than agricultural to teach him relative values.

City people sojourning in the country for fresh air and cheaper living, looking down on the farmer as inferior, will scarcely believe that it requires more brains to run a farm properly than to sit over a ledger, nor can they fathom the many experiences that the countryman must necessarily first master before he can be classed as a successful landholder.

The city, glistening with its many frivolities, has drawn young people from the country to such an alarming extent that universal comment has been aroused, much the larger percentage of our population being today engaged in other than pastoral pursuits. This in itself would not be so alarming, were it not that the vitality of our nation is being drained proportionately, for it is a well-known fact, if the country should today cease to replenish the city with new blood, the city would soon die for want of population.

No wonder, then, the cry of today is, "Back to the farm and nature." And back we must and will go, for this threatening catastrophe is too appalling to be passed by unchallenged.

TO VIEW
ANNOTATIONS

Will not this undue proportion of population tending city-wards have the effect of still enhancing the price of all farm products? This great question has already been answered by the protests against high prices of our entire population, re-echoing as it has to the farthest corners of our civilized land. In direct consequence of this unbalanced condition of population, all food products have advanced to an almost prohibitive figure. This seems particularly so during the long winter months, when fresh farm products are to be grown only in the far South.

Will it not be wise to inquire into the probable results of this extraordinary situation? Without penetrating further, has not the far-seeing individual, though hopelessly in the minority, already found the necessary remedy to combat this, which we must admit is a great and menacing evil? He has already concluded to not only rebuild this tottering economic structure by getting "back to the land," but to replenish his depleted bank account, and wisely so.

That this feeling has already taken root is proven by the remarkable inquiry for farm lands throughout the entire country, and particularly in the extreme South and Southeast, for he who is wise enough to foresee this great tendency wishes to enjoy with his family and progeny not only everlasting summer, but at the same time to avoid the rigorous Northern winters. No wonder, then, that once it was announced that the great rich body of land in South Florida known as the Everglades would be reclaimed, thousands began to avail themselves of the valuable opportunity to secure a home and a livelihood in this superb climate—in a country where fortunes have been and will be made, with probably less exertion, on a smaller body of land, under more pleasant circumstances, and in less time than in any known place on earth.

CHAPTER II.

AGRICULTURAL SCHOOLS.

GRICULTURAL education is at last recognized and conceded to be a necessity for the advancement of a nation. Our far-seeing statesmen recognize the value of the scientific advancement of agriculture and are gradually awakening to the fact that it is of more importance to a nation than mere Dreadnaughts. Well developed farming communities are worth more intrinsically than overpopulated business centers. Elementary agriculture is now being taught in many schools, and as soon as its real value is exploited will become the fundamental study in all schools. It is already being recognized as the real foundation of business prosperity.

The farm is where sound minds grow in sound bodies, and where the perfection of intelligence is attained. It is here where high moral standards flourish and are brought to still higher elevations. He who is brought up amidst verdant nature, unhampered and uncontaminated by vulgar business methods such as are practiced and are prevalent in thickly settled cities, is in possession of a much higher development of manhood and is apt to attain such positions of prominence as will satisfy man's highest ambitions.

DOCKS, MIAMI RIVER.

YACHTS ANCHORED AT "ROYAL PALM" DOCKS, MIAMI.

CHAPTER III.

THE MAN FITTED FOR THE BUSINESS.

ERE I to select an ideal for this business, it would, of course, be a man of not only unusual strength of body and character but one having a great amount of both common sense and perseverance. Unfortunately, very few men have all of these qualities, but those who have weaker bodies often have the other essentials to a more marked degree. If you think you are a hustler, or rather if your neighbors think you are (and that is the only true sign), if you are of a persevering nature, if you are a friend of outdoor labor, if you don't get tired easily, even though you have but the ordinary vitality and strength, you can, and most likely will, make a successful farmer.

The veritable giant, with all his strength and stature, is often outdone by the ordinary man, possessed of the other useful characteristics, for often weather or other conditions over which he has no control interfere very seriously with the countryman's plans, and in a short time practically annihilate his efforts. It is then that the man with perseverance and stability comes to the front and often builds great success upon the very ashes of former failures. That this quality is necessary is easily proven, for each and every farmer, be he ever so successful, can recount at least one and often more incidents in his past in which his best efforts have been utterly wasted through no fault of his own whatever. There is no mystery in the business; but success depends upon hard work, good judgment and capable business management.

In a word, he who is successful elsewhere is apt to be more successful here, his only competitor, the average Southern farmer, being not only a very indifferent business man, but often not

overly industrious; whereas, his Northern brother is generally in possession of both these virtues, and is, in addition, of an economical disposition, a quality sadly lacking in most of our Southern tillers of the soil. This shiftless lack of economy and industry, so eminently characteristic in the South, is not caused, as is so often asserted, by climatic conditions, but rather by a lack of educational facilities for the youth as well as the adult. For who will deny that the Northern farmer, together with his forefathers, has been forced into economy and frugality for centuries past by his competitors in business? This condition has never confronted the Southerner, he experiencing no privations caused by long winters which make inroads upon his purse. It is, therefore, a fact that the Northern husbandman, educated as he is in a superior manner, has many advantages in the South.

Shall the prospective grower come to this part of the country? Yes, by all means; and although certain branches may be and will be overdone, we have up to the present time been unable to supply even a small percentage of the country's population with our products. We will soon learn to diversify, and when we get to raising sugar cane, rice, etc., we will certainly run short of land. Thus, though the field be large, the possibilities are larger.

Our matchless climate is a great temptation to prospective immigrants. Many come here who cannot endure the rigid Northern climate; others (and I fear the majority) come here tempted by the fabulous prices often received by us for our products—in other words, they are attracted by the almighty dollar alone. To these poor, grasping individuals I wish to extend my sympathy, for I certainly feel sorry for those who do not naturally love their vocation; who cannot honestly admire nature and her many beautiful products; who do not even feel inspired or spurred onward by smaller successes to larger ones.

Yes, indeed, he who cannot work hand in hand with nature—who sees only the dollar when others admire beautiful nature—certainly deserves derision only, and can be regarded only with abject pity. On the other hand, he who loves nature and tries to operate with it is uniformly successful, his rewards being double, the money consideration being secondary, though often—yes,

almost always—he is rewarded with a much higher price in actual cash than his poor misguided brother.

God loves his fellow-workman and willingly lends a hand to those who cheerfully seek his co-operation. It is much easier to cultivate a cheerful disposition while you are cultivating your crops than to look upon your handiwork with a sordid, unappreciative expression. Smile, and nature smiles with you, and happiness, contentment, as well as prosperity, will follow your footsteps.

CHAPTER IV.

CAPITAL REQUIRED.

ROBABLY nowhere can an individual start a business, agricultural or otherwise, with less cash than right here in South Florida, and nowhere can the agriculturist find a better place to invest his money.

A man can, if he has strength, perseverance, and knows the business, make a fortune here with but little capital; in fact, all of our leading truckers came here poor, and I do not know of a single one who brought much capital with which to start. It therefore seems not so much a matter of how much capital a man has, but rather how he invests it.

The successful go at a thing without bluster and have accomplished the greater part of their undertakings before their neighbor is aware of it. On the other hand, the boastful beginner often ends in ignominious failure. A conservative estimate of the amount of cash required to start a truck farm here will depend, therefore, much on the individual himself.

Allowing he has a five or ten acre farm, including house and shed room, he will need, in addition, a horse or mule ($150), wagon and harness ($50), implements and incidentals ($100). He will also need about $40 worth of good fertilizer* to the acre (for *intensive* operations), besides horse-feed and provender for himself and family if he has one, making about $700 necessary and sufficient to start five acres in truck. If, however, he is not a worker, he will need wages for a hired man, and this will add materially to the expense and deduct from the profits proportionately.

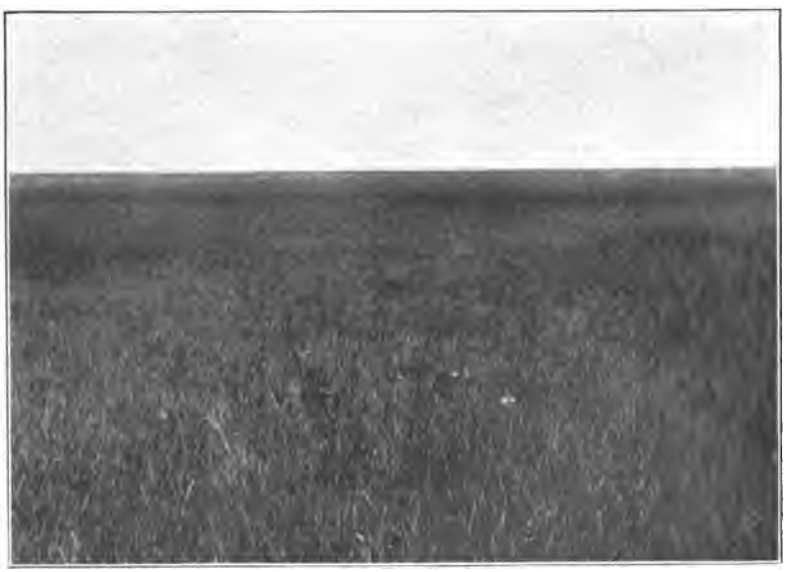
* *See last part of Chapter VI.*

Of course beginnings have been made more often with much less money, and with splendid results. I will relate here my own experience in this line. My start was made with a capital of $1,000, and out of this a house costing $400 was built, and six acres of truck planted, mostly in tomatoes, resulting after six months of close application in a gain of $3,400, after all bills were paid, including expenses of a family of five. No help was engaged until it came time to pick, pack and ship. *We* did the work.

Many cases have been known in which truckers have given part of their time to working out for neighbors, earning thereby enough to carry their expenses, virtually getting along without capital, and winning out handsomely at the end of the season. Again, some will start on a wholesale scale, investing large sums in land, labor, tools and fertilizers, but by hiring indifferent help and trusting the project to some one else, make an utter failure. In a word, this business requires constant individual attention, and he who trusts to disinterested people generally fails, as he deserves to.

I would always recommend to all beginners that they keep a reserve of funds at hand for any emergency, such as may be caused by excessive drouths, wet spells, frosts or other unlooked-for obstacles. While advice of the neighborly kind is sometimes good, it is best to use one's own judgment and common sense in all matters of life before accepting some one else's say so. This is particularly so in matters pertaining to trucking and farming operations in Florida.

DREDGE "OKEECHOBEE" DRAINING THE EVERGLADES.



RAW RECLAIMED EVERGLADE LAND, LEVEL AS A PRAIRIE.

CHAPTER V.

LOCATION AND SELECTION OF SOIL.

ROBABLY the most important factor to the truck gardener is the selection of the soil. True, vegetables are grown in nearly all kinds of soil, but with greatly varying results. Unless the soil be not only rich, but of good depth, and underlaid with a more or less porous subsoil, to admit both water and air, results will not be satisfactory. We have in extreme Southern Florida a number of different kinds of soil, from the deep, rich alluvial soil, better known as muck beds, to the poorest white drifting sands, almost too poor to support any kind of vegetation.

It is a fact that less than one per cent of the farming in this entire State is done on any but soil of a very inferior nature. However, close investigation has convinced me that most of the best farm land lies dormant today for want of proper drainage. On first sight it seems as though this could be easily remedied, for although the country is comparatively level, the good land is surrounded by somewhat higher ridges, making drainage more difficult; and, in addition, the swamps are usually very large, and correspondingly large ditches must be excavated. This necessitates the expenditure of more money than can readily be raised by the individual, and must be undertaken by the larger corporations or by the State.

Pine land, when underlaid by a clay subsoil, gives very fair results; especially is this so if under irrigation by the method better known as the overhead system (see chapter on "Irrigation"). South of the Miami River there are among the rocky pine lands lying adjacent to the Atlantic ocean numerous pockets, often many acres in extent, where excellent crops of peppers, tomatoes and eggplants, as well as beans, are grown to perfection.

However, it requires *almost double the amount of fertilizer* to properly grow a crop on this soil as on the dark land of the Glades, and the profits are cut correspondingly.

The better classes of pine-land soil are underlaid, besides with clay, with a porous coraline limestone, which, when not too far above the water level, will provide ample moisture through the capillary attraction of the sun, drawing the water up from beneath the reach of the roots of the plants, not unlike a lamp wick. Some useful fertilizer ingredients also are pumped within reach of the plant roots by this natural method. Still further south, in what is locally known as the Homestead country, are very shallow beds of land composed of an admixture of sand and clay, containing nearly two per cent of iron and aluminum, in addition to almost one per cent of phosphate. This soil, however shallow, produces excellent vegetables, and does not require as much fertilizer as ordinary pine land.

CHAPTER VI.

THE EVERGLADE SECTION.

ITHOUT doubt, the richest soil in the State is in the section known as the EVERGLADES. This great swamp covers an area of over four thousand square miles, embracing considerably more than half of the territory lying south of Lake Okeechobee. This region does not present an impenetrable thicket, as is so often supposed, but it is in appearance more like an Illinois prairie, dotted here and there with a clump of trees, quite similar to our Northern windbreaks, the only difference being that they have been covered during the rainy season with more or less water. This vast area is also covered with large patches of coarse grass, which, on account of the leaves or blades having rough or serrated saw-like edges, is called saw-grass.

This grass in places grows so rank as to form a dense mass, often ten feet high. Through this tall grass here and there are winding, tortuous channels which, after enticing the canoeist through a maze, terminate more often in a still denser barrier of saw-grass. During the dry season these saw-grass beds are often fired by the Indians in quest of game, and burn to the ground, accompanied by loud popping noises not unlike the cracking of rifles in sham battles.

Should the rainy season begin after one of these saw-grass fires, the life is smothered out of the roots by the water standing over them, and as these patches seem to have accumulated a great amount of humus, being frequently several inches higher than the surrounding land, they form an enticing seed-bed for trees, and low hammocks are frequently formed in this way. There seems to be no part of this immense elevated plateau that is

not reclaimable, or that will not respond to man's useful influence and energy, and thus be made extremely valuable.

Since the land is free from stumps and trees, the item of clearing needs little consideration—simply burning the grass cleans the land for the plow. The soil, although the very richest, is easily worked and irrigated and has, in addition, such climate and location as to make it extraordinarily valuable. The ease with which this kind of soil can be cultivated, on account of its light and porous nature, is another very attractive feature, especially when compared to the stiff, heavy soils of other States. Another favorable consideration is that the busy season comes here during the coolest and most pleasant time of the year, and though the labor be ever so hard, one can work in shirt sleeves and without perspiring.

Analysis of this soil shows, besides traces of potash and phosphate, as high as three per cent of ammonia, it being in this respect a very rich fertilizer. When this tract is sufficiently drained and the possibility of overflow from Lake Okeechobee is removed, it will without a doubt become the *largest, most productive and most profitable garden spot in the United States.*

The surface soil, and the subsoil particularly, varies considerably, some parts having a subsoil of marl, some sand, and in other places the muck is many feet deep. Where there is an admixture of sand and muck, it is not only easier to till, but is naturally much better aerated and in consequence contains less acidity.

Were I asked to select an ideal soil I would prefer a deep sandy muck well decomposed, situated where it can be easily drained, preferably on or near the bank of one of the canals, by means of which also the produce can be transported by barge directly to the steamer lines plying to and from the northern markets, thus getting advantage of the cheapest mode of transportation.

This section is attracting many settlers and when once under intensive tillage will become, without a single doubt, the heaviest producing area in the United States. It is simply wonderful to

think that such a large tract should have not only the richest soil and finest climate, but be so located as to be subject to subirrigation throughout, with Lake Okeechobee as a reservoir and the entire Kissimmee River valley as a never failing supply of not alone water but humus as well. When to this is added the water transportation it is no wonder that thousands have bought and will buy homes here. This country can easily produce forage enough to supply a million head of cattle the year around.

* * * *

I have often wondered why the black muck of the Everglades should contain two or three times as much nitrogen as similar land in the North. The only way I can account for this condition is that the severe disintegrating action of the frost in the North frees a much greater proportion of the ammonia, thus making it water soluble, by which agency much of it is washed from the soil and wasted.

As we can till soil here in the South and keep it active throughout the entire year, all the nitrogen necessary will be freed to grow abundant crops, and for this reason, if for no other, the producing ability of this Everglade muck soil will be wonderful.

There is no doubt whatever in my mind that this most expensive element (nitrogen) can be entirely dispensed with in our fertilizers for Everglade land as soon as the land is sufficiently reclaimed and aerated to remove enough of the everpresent acidity to allow the germs of nitrification free action. That this is true is proven by the fact that recently drained land here already produces fully twice the wild growth it formerly did.

PLOWING NEWLY RECLAIMED EVERGLADE LAND.

SEED-BEDS IN THE EVERGLADES. TOMATO FIELD IN BACKGROUND.

CHAPTER VII.

PREPARATION OF THE LAND.

OWHERE will the old adage "A stitch in time saves nine" apply so strongly as here, and the experienced grower invariably gives his soil a most thorough preparation by plowing, disking and pulverizing until a deep, mellow, compact seed bed is prepared. Often in this part of the country it is preferable to plow some time in advance of the cropping season, so as to let the land settle thoroughly, if possible catching some of the later tropical rains to help settle the soil before finally harrowing to a fine seed or plant bed.

This method of preparation has many decided advantages, inasmuch as it has a tendency to wash out any acidity contained in the soil, and deposit nitrogen absorbed from the air by falling rain, thus finding here a tempting seed bed in which to start bacterial propagation. The careful, experienced grower has his mind made up in advance as to the number of acres he wishes to plant of any given variety. He plows carefully, turning a straight, uniform furrow, in even sized lands. Should the soil contain acidity he gives the sun a chance to act before he harrows it down, and applies lime or wood ashes to further remedy this defect. All furrows must be plowed in the proper direction so water can find easy access to the lateral ditches by way of the dead furrows, for more thorough drainage.

If you are a novice you had better have some one experienced lay off your lands, or lay out your rows, for if crooked they will not only be harder to work, but will be an everlasting eyesore. In case the land is seeded naturally with foul weed seeds, it is a great saving to harrow thoroughly and let them come up several times, and by repeated harrowings destroy the majority of them.

This procedure cuts down much labor when the crop is planted.

Some of the best planters put in a summer cover crop of velvet beans, beggar-weed or cowpeas. This is not only a cheap way to store nitrogen, but the soil will be vastly superior in a mechanical way if shaded from our tropical sun during the summer months. This method is further commended because these leguminous plants produce a valuable crop for hay or forage when the land would otherwise be dormant or grow to foul weeds. The clearing off of land thus planted is very easy and, when raked over with a horse rake, will often be found to be in fine compact condition for disking or harrowing without further labor of plowing.

CHAPTER VIII.

NO PRESENT DANGER OF OVERPRODUCTION.

UCH controversy has been brought up at different times concerning the danger of the trucking business being overdone in this territory. To familiarize ourselves with this, let us consider the conditions that have prevailed in former years.

I remember that nine or ten years ago a light shipment of ten cars of tomatoes going out in a single day had a depressing effect on the Northern markets. The prices in New York at that time depreciated from the mere anticipation of this quantity of tomatoes being thrown upon the market at one time. However, a few years later as high as 25 to 35 and even 50 car-loads of this same fruit were placed upon the market daily and it seems did not have the effect of reducing prices to as great an extent as those former light shipments did. During the season 1909-10, over 100 car-loads of tomatoes were shipped from Dade County per day for thirty consecutive days, and wonderful to relate, although the market at that time was not what we would consider high, it held its own remarkably well.

Whether this is actually due to increased consumption or not, I am not in position to state. I think probably the weather being very pleasant throughout the North during the months of our greatest shipments, had considerable to do with it. It stands to reason that when the people of the North find Spring at hand, particularly after they have been penned up in their houses by inclement weather for months at a time, their appetites naturally have an abnormal tendency towards vegetables. During the time of cold weather in the North everybody has naturally

eaten largely of meats, therefore the first few sunny days are apt to bring the good housewife into the open, and the tempting vegetables displayed at this time of the year by the green grocers have a strong tendency to induce her to invest in the various Southern products, so attractively displayed.

One thing we can always depend upon, no matter how large the acreage originally planted, there are always many failures to be chronicled before the season is well advanced. Excessive rains, drouth, ravages of fungi and insects have a tendency not only to annihilate the crop, but often cause a number of our novices to discontinue the business entirely. I have often met people, unfamiliar with the business, who comparatively early in the season were so disheartened that they simply gave up the struggle, for which they were sorry later on, as the prices usually, in consequence of inclement weather or the other conditions named above, advanced to an almost prohibitive figure.

The old grower, on the other hand, being familiar with production, and having in past years experienced unfavorable as well as encouraging experiences, usually is persistent and keeps right on persevering, and for this reason almost invariably comes out at the end of the season with flying colors. I frequently have known peppers, for instance, to be begging on the market, thereby causing many of those easily discouraged to neglect their crops to such an extent as to give them over to the weeds, and then for the market to advance to such a figure that those who had been untiring and faithful in their work, realized a most handsome profit in the very years in which the largest acreage had originally been planted. This is equally true of other crops.

So familiar have we grown with the different obstacles to be encountered and such sturdy control have we of the conditions here found, that it is a common saying in the South that we *make* crops here. Probably our familiarity and success with the use of a well balanced fertilizer is what leads us to want to monopolize all the credit of growing our crops, forgetting that Nature is the most important adjunct.

FREIGHT STEAMER AT WHARF, MIAMI. THIS BOAT LINE INSURES LOW RATES TO THE GROWERS.

UNLOADING BARGES AT FT. LAUDERDALE DOCKS.

CHAPTER IX.

SELLING F. O. B.

VERYTHING should be done to encourage cash F. O. B. sales of our products. Unscrupulous dealers usually have a great number of drummers locally known as "tomato or vegetable buzzards" canvassing our country. They frequently quote high prices on our products, but are very careful not to tie themselves down by contract to any given figure. "A bird in the hand is worth two in the bush" applies here very readily. We often find that our buyer will offer us a certain figure for one of our products, which price has been inflated by the representative. We are tempted to take the risk and ship our products to his firm, only to receive a very insignificant return for the same.

It should also be remembered that if we were all to adhere to the cash or F. O. B. system of selling we would in a short time have the matter so well in hand that no loss whatever would be incurred and we could go home from market with the cash jingling in our pockets, sleeping well at night and not being obliged to think and wonder and fret about the uncertainty of our returns. For this reason also, numerous packing houses have been established throughout our growing section by the growers themselves. Some packing houses are owned or controlled by dishonest dealers, who not only ship our stuff indiscriminately, but often have a direct understanding and come here for no other purpose than to deceive.

The annual loss through dishonest commission men amounts in the aggregate to an enormous figure throughout this section of the country. Co-operation among the growers whereby these frauds can be detected and exposed would work a great benefit

in favor of the agriculturists of this section; and each and every-one of the new-comers should realize this, and should bear in mind that one of his first duties should be to join a branch of the Local Association now being established throughout this section and thereby help to eradicate this dishonest element.

STATE CANAL IN THE EVERGLADES, FOR DRAINAGE, IRRIGATION AND TRANSPORTATION.

TEMPORARY DAM IN STATE CANAL, TO BE REPLACED LATER BY PERMANENT LOCKS.

CHAPTER X.

DRAINAGE.

WET soggy soil will not produce, and all lands on which farming or truck gardening is contemplated must first be thoroughly drained of all surplus water to a sufficient depth to allow a free circulation of air, and ample room for the natural development of the roots, allowing them to penetrate the subsoil in quest of moisture and other necessary ingredients. A well drained soil not only offers a firm, deep foothold for all kinds of trees and plants, but allows the rain to percolate and in turn admits the air sufficiently to start the millions of minute yeast-like organisms, called microbes or bacteria, to start decomposition or nitrification of the soil. Neither these bacteria nor plant roots can exist for any length of time in earth saturated with water, as this unfavorable condition produces an acidity which rapidly either renders them dormant or destroys them entirely.

Soil containing the proper amount of moisture is in a constant state of intensive activity, every square inch being filled with millions of these useful germs, whose office it is to digest or make available the ingredients necessary to produce plant growth.

Air is just as necessary for the development of plants as it is for animals. It must be present in sufficient quantities to oxidize the various plant foods, making them soluble and ready for absorption by the feeding rootlets. Drainage, therefore, is necessary not alone to remove surplus water, but also to encourage the development of these organisms, without which successful agriculture would be impossible. A rich deeply plowed soil that is well drained will hold moisture much longer than if plowed

shallow, and will feed plants accordingly, which fact has been often demonstrated during protracted drouths. Especially is this true where clay or muck predominates. Thorough drainage will work wonders, as has often been evidenced in the enormous increase in productions where it has been accomplished.

In soil where clay, marl or muck predominates the lateral ditches should be deep rather than wide. A large proportion of the failures recorded can be directly attributed to either the entire omission of any kind of drains, or drains of insufficient capacity or depth to remove the acid stagnant waters or to allow the air free access to decompose the ingredient vegetable matter. Just how long these useful bacteria can exist under water has not been ascertained, but they are known to live in running water for a much longer time than in stagnant water, thus proving that land containing active drains can be overflowed with much less damage to the soil than when undrained. Drainage is therefore of the utmost importance to the practical and scientific agriculturist, and where it does not exist naturally it must be supplied artificially.

Soil of a compact nature can be drained with tile—laid under ground when the fall is sufficient—with splendid results, but when the land is very level, and in a country where great quantities of rain fall in a very short time, open ditches of sufficient depth and capacity are preferable. The larger of these ditches, say eight feet or over in width, offer splendid transportation facilities for the removal of crops of a bulky nature, or to bring in fertilizing material, etc.

The smaller sub-lateral ditches should be dug about 18 inches deep and close enough together to remove the surface water in a few hours after a hard rainfall. These sub-lateral ditches should be placed about 20 to 30 feet apart. These same ditches can be used for irrigation by forcing the water through them by way of head ditches. Of course, this applies only to a level country, and land that can be drained in this way, if otherwise suitable, can be used for planting trees, especially if the land is plowed two or three times, throwing the earth in the same direction, forming a

ridge or apex, say a foot or more above the general level of the field. This apex will drain the land towards the ditches and forms an admirable place to plant trees upon, securing them at all times from standing water.

All ditches should be dug with sloping sides to prevent their caving. The width and depth should be kept uniform, for one must bear in mind that the capacity or delivery of a ditch is governed by the narrowest or shallowest place in it.

In case the land is extra level, great care must be taken to see that these laterals have sufficient fall, and for this purpose an instrument had better be used, a carpenter's level equipped with level sights being satisfactory for small fields. The lands of the Everglades are admirably suited for this manner of drainage. The open ditches can here be dug on almost a level, and for this reason these same ditches can be used for irrigation, by simply keeping the water-table where the crop will be benefited the most. This can be further facilitated by putting in miniature gates or locks, so water can be let in or out as the occasion may demand. It will be necessary to install a pump for raising the water to the level of the ditches in a dry time for irrigation, but this pump can in turn be used to carry out water in wet spells, thus serving a double purpose.

The expense of a pump for this purpose need not be heavy. Since the lift is very slight a cheap outfit will raise a great amount of water. This method, in my opinion, will find great favor in this region.

I feel that I would not be doing this subject complete justice without referring to the danger of one's being tempted to trust to luck and attempt to farm on level land without first making ample provision by digging these lateral ditches. Long continuous drouths will disarm one in this respect and will convince the individual to take precedent as a guide. Failures are to be traced to this every season, as one is apt to think that because it did not rain one season it will be dry the next also, and so on. I say, *DON'T TAKE ANY CHANCES*. We seldom have two

seasons alike following each other anywhere; and here in Florida there have not been two alike in my experience.

True, it may look a little foolish on your own part to have expended a snug sum for ditches only to have a protracted drouth follow; however, even here if you are alive to the situation you will, if you have not already done so, at once install an irrigating plant and come out with flying colors. If it does not rain when your crop is nearly made, you will find your efforts doubly repaid, for the best prices are usually obtained in seasons wherein the most unusual freaks of weather appear. In fact, I have, governed by many experiences of the past, learned to quit guessing at the weather, but just to try and guard against all kind of excesses, and when caught unawares try and meet the situation, however unfavorable, as best I can, resolving in the future to try and guard against a repetition of the same mistake, with the result that I have met with flattering success.

DYKE AND LATERAL DITCHES ON MR. WALDIN'S EVERGLADE FARM.

TROUGH FOR SURFACE IRRIGATION.

CHAPTER XI.

IRRIGATION.

O matter how rich our country may be in an agricultural way, or how deep and black the soil, it would soon cease to produce if moisture were withheld, as all plant growth absorbs food in liquid form. In the first place the very microbes, whose function it is to prepare the meals underground, cease action and become dormant when the soil becomes dry, but are awakened to active life at once upon coming into contact with moisture. Unfortunately there is no known land on this wide earth where it rains just enough either to suit plant development or to please everybody, hence if we wish to be uniformly successful we must supply as well as remove water artificially. In locations where the moisture supply is under absolute control, the most intensive and successful farm operations are carried on and the greatest amount of products grown per acre.

Successful planters, being ambitious, are continually striving to do better, hence better methods are adopted as quickly as they are a proven success, and for this reason many are preparing to irrigate in all parts of South Florida, especially since our crops here are grown principally in or during the dry season of the year.

There is considerable inquiry in regard to the irrigation subject, and various kinds of plants are being installed. The styles of plants are governed by the kind of soil and subsoil, whether sand, muck, clay, or marl, the latter three possessing the faculty of retaining moisture to a much greater degree than the first named. The water supply also governs the kind of plant installed to a large degree. On land with sand or rock subsoil, irrigation is

accomplished by what is locally known as the overhead system. It is a very successful method, as it not only is economical of water, but it would be impossible to hold water in sandy subsoil on account of its leachy character. This style is the most costly to install. Besides the expense of mains, consisting of 2 to 4 inch pipe, laterals must be laid 25 to 40 feet apart, with long or short stand pipes (usually about 6 feet high) of ¾-inch iron pipe placed a corresponding distance apart.

These stand pipes are crowned with various kinds of spray nozzles, aiming chiefly to get such a nozzle as will distribute over as large an area as possible. This system has its advantages as well as its disadvantages. Among the former may be counted the prevention of damaging frost; it also washes off red spider and makes it unpleasant for leaf-eating insects; on the other hand, it has a tendency to produce a class of fungi such as flourish best where the foliage is damp.

This overhead system requires a pressure of about 25 pounds per square inch to properly force the water and to generate such a spray as will best imitate a fine rain. Spraying is best applied evenings or during the night, but beneficial applications can be made during cloudy weather. In all attempts at irrigation, you will make no mistake by using a surplus of water and by keeping the soil—especially if of a sandy nature—constantly in a moist condition; and unless this is done religiously, absolute failure is liable to result.

Probably the method that is most successful is the one of placing under-ground tiles and forcing water through them. This is the system so largely used at Sanford, Florida. However, this system is only feasible where there is a substratum of soil which is more or less impervious to water, such as clay, marl or hard-pan subsoil.

When the Everglade drainage is completed it is proposed to install locks in the canals and thereby control the water level in the soil. This will at all times provide ample moisture and will eventually assure very cheap irrigation for this entire area. But until this work is completed, which will take some time to accom-

plish, smaller areas in this section can be controlled easily by putting in one of the shallow lift pumps of great capacity such as are used to pump out, or flood, rice fields.

With all crops, especially vegetables, the increase in production is very marked when water is applied scientifically, the increase being often doubled; in fact, in seasons of protracted drouths little or nothing can be grown unless under water control. Not only is this increase in production to be noted, but the quality is proportionately improved and such products always bring an increased price in the market and are in much greater demand. A great number of our tropical plants require considerable moisture and will not produce properly unless an adequate water supply is at hand.

Care must be taken to provide water that contains no matter injurious to plants. This is occasionally found in artesian water, some of which contains chemicals that do injury to the foliage, but these cases are rare. On the other hand, the small per cent of sulphur often found in the water here is no doubt of some benefit, especially if used in sub-irrigation, as it has a tendency to destroy injurious fungi in the soil. Surface water, such as is found in streams or will be found in the canals of the Everglades, is admirably adapted for irrigation purposes.

As in all other matters, success in irrigation depends on close attention to details, for as before mentioned, plants requiring their food in liquid form are at once stunted, rendered dormant, or destroyed entirely, if their water supply is inadequate; in other words, they not only die of thirst, but starve for want of food. In addition, all bacterial action ceases, thus causing further loss and injury to the soil. Hence, the careful trucker will examine his soil daily and keep in close touch as to the condition of both the surface and the subsoil. In short, he is not only intimate with this as well as all branches of nature, but loves the very scent of moist newly plowed earth.

An additional reason why one of the forms of sub-irrigation is popular is that the water coming from below does not have the tendency to wash out the fertilizer, but in fact has a tendency to

bring these useful ingredients to the roots from below, in this way facilitating growth; whereas if the water falls in imitation of rain it has a tendency to leach out the fertilizer, and in case the precipitation should be heavy, will often wash out or leach the plant foods far below the reach of the roots, thus not only depriving the plants of their present ration, but robbing the soil of the greater part of its available nitrogen and other ingredients. It is a sight never to be forgotten to see a carefully sub-irrigated garden, the rich dark green of the foliage showing plainly as far as the field can be seen, and such an area appears a veritable oasis when it happens to be surrounded by land that is not irrigated.

The fertilizer* for an acre of vegetables (operated on the *intensive* plan as outlined in this book) costs not less than $40; the irrigation for this same acre need not cost over $5, but still is likely to be of more importance than the first item. Therefore, we need not wonder if all fields where these conditions can be easily and cheaply supplied will be equipped with some sort of irrigating systems in the near future; in fact, it is a cheap mode of crop insurance.

* *See last part of Chapter VI, relative to lower cost of fertilizer on well aerated Everglade land.*

CHAPTER XII.

STABLE MANURE AND FERTILIZER.

HE first material used by mankind to promote plant growth, no doubt, was ordinary stable manure. Although we have found in commercial fertilizers valuable substitutes, we have today nothing better with which to promote plant growth than a well-rotted, properly prepared compost. I say properly prepared compost, as I consider the preparation and care given a compost heap of such importance, that I am apt to have my judgment of a grower biased as to his ability, should he fail to properly care for and prepare his compost heap. The waste of stable manure is so common, taking place in such a silent, hidden manner, that it is liable to escape notice entirely. One can almost judge of the size of a trucker's bank account by the size and condition of his manure heap, and a well kept compost heap may be taken as the surest indication of thrift and success in one's farm operations.

It is of vital importance to the farmer to know the value of all materials in his reach which can be converted into compost. Experiments carried on by our scientific people show that the excrement of a working horse, if carefully saved, will amount in weight to about six tons a year, of which, it must be remembered, the liquids are the most valuable part; ample bedding should, therefore, be supplied at all times to absorb the liquid.

To carefully absorb and convert into plant food the greatest amount of the ingredients available, depends altogether on how well and how carefully the manure has been composted; to do this I have found it advisable to carefully fork over the entire mass every three or four days, after removal from the stable. If this forking-over process is repeated four or five times—being

careful to mix thoroughly, break up all lumps and moisten each layer, and, better yet, add to each layer a liberal sprinkling of either ground castor pomace or cottonseed meal—you will have an ideal compost heap. It should not be used until the greatest heat has passed away, and a cover of earth or muck in a dry pulverized state should be added at the final or last forking-over. Provision must be made to prevent leaching in wet weather or great loss will result.

Well decomposed stable manure seems to have a value not accounted for by analysis, in that it introduces a necessary ferment congenial to plant growth. Among all manures, that from horses, when composted, seems to be the most valuable for starting plants on; especially is this so if the land is new, as, for instance, in the Everglade region, or of a swampy nature. The faeces of the horse's manure are covered with a yellow or white film which seems to contain and introduce germs that start nitrification in the soil and decomposition in the manure pile or compost heap.

It is on this account that when only a small handful of compost is used under a newly set plant the seed spores of nitrification are simultaneously introduced and for this reason are of much more benefit than the mere fertilizing qualities contained. However, it must be remembered that in this handful of compost are also present, in a very finely prepared form, the ingredients of the elements necessary for plant life, which are absorbed by the tender rootlets at once, similar to a baby food.

Thus the young plant newly set is not only supplied with a nourishing food to start with, but also is supplied with a working force of useful bacteria to co-operate and work for the plant through its entire life by freeing ammonia and other ingredients for its consumption. The very moisture in a well prepared compost is a factor upon which little stress is laid ordinarily by the chemist, but like other secrets, seems to have slipped past his magic wand. The humus supplied through stable manure forms a body, in which also ingredients acceptable and congenial to all plant growth are stored. Humus also holds in store carbonic

acid, which decomposes the minerals in the soil, setting free, besides other substances, potash and phosphoric acid.

Moreover, this humus has the power of absorbing about six times as much latent nitrogen as is contained in the best stable manure, which can all be made available plant food through thorough tillage, liberal applications of lime or carbonate of potash. A great argument in favor of manure is that it forms this humus. However, it must not be forgotten that these same results can be obtained by turning under green leguminous crops and these can be grown with fertilizers.

The chief objection to the use of stable manure is the item of expense; being of so bulky a nature, it costs a great deal to prepare and handle. Another objection is that it differs so much in quality, one cannot determine with any definiteness the fertilizing elements contained therein; this is caused by the difference in the fodder with which the animals are fed, the quality and quantity of bedding used as an absorbent, and the final care with which the compost is prepared. I do not want to discourage the use of compost, however, as I deem it indispensable for such uses as starting plants as outlined above, but when once introduced, these germs of nitrification will stay in the soil and it would be a useless expense to apply this compost except as a plant starter only, using thereafter the much cheaper commercial fertilizers to complete the growing crop.

As we keep but few horses or other animals in this country, I would advise all truckers to save all refuse that will decompose quickly, and add to the bedding, or compost heap, and if handy cover the same liberally with muck or dry earth. We must learn to look upon the compost heap as we would upon a savings bank account—a growing interest-bearing investment. As before mentioned, the trucking interests are of such magnitude that we must use commercial fertilizer, there being not enough manure to supply more than a meager share of our needs, especially in South Florida, where the trucking business will, without a doubt, continue to be a leading industry. A large per cent of the plant food in the soils of the North are made available by the severe action

of the frost, and this, no doubt, has a great deal to do also with removing and neutralizing the acidity there. As we in the South cannot depend upon this process, the defect must be artificially overcome by thorough tillage, and by adding lime or wood ashes, the latter supplying, in addition to the useful carbonate of lime, both phosphate and potash in their most available forms.

Ordinary soil from an organic standpoint is an accumulation of broken rock, decomposed minerals and other disorganized organic matter—a dead, inert mass, virtually the waste of Nature's workshop.

However, there exists an organic as well as a chemical life which is so complex in its action and reaction, marriage and divorce, utterly disregarding all moral laws in seeking its affinities, that it presents some of the most complicated problems found in physical science.

Here in the tropical South, where there is practically no interference by frost, the changes go on undisturbed, favorably affecting the fertilizer ingredients or manure supplied. Plant life possesses intelligent volition, stands higher, and produces more decided results than is brought about by chemical action or mineral instinct, thus building up plant structure by dissolving and absorbing from the minute soil particles. This is further facilitated by the weak acid which is known to exude from the ends of the feeding rootlets of plants, which while bringing about this dissolution at the same time absorb in their structure these useful and necessary ingredients.

The chemist tells us that this air around us, which we can neither see nor grasp, and of which we take but little account, mixed up with a little water makes up about 95 per cent of our growing crops. We know something of this, being aware of the fact that if we burn a ton of combustible matter, we have in the remaining ash a residue that is a mere pittance in comparison to its former bulk and weight—the greater amount returns to the air, from which it originally sprang; thus showing clearly that plant life has simply borrowed and returned these interesting substances. Our soil, therefore, acts chiefly as a place in which

to anchor and hold plants upright, in other words, a mere anchoring ground through whose agency, however, the necessary food is prepared, stored and supplied as demanded. Should we hand this remaining ash to a chemist for analysis, he would tell us that it is made up of silicon, potassium, calcium, phosphorus, sodium, aluminum, sulphur, iron, chlorine, and magnesium, these being the principal elements that plants take from the soil. Chemists have further settled the fact that nearly all of the elements that enter the composition of plants are found in all soils, leaving but nitrogen, potash and phosphorus to be supplied in more or less quantity, to promote a satisfactory growth, and these will be the elements we will be called on chiefly to discuss as commercial fertilizers.

Dealers had formerly a great bugbear to contend with, inasmuch as the agriculturist was slow to adopt these "new-fangled artificial fertilizers"—they were not bulky enough to suit, neither did they, in his opinion, have the damp beneficial effect contained in compost. Another objection was that they were not supposed to leave any nourishment in the ground for the following crops. This is now conceded to be an argument in their favor, the plant food in them being in such digestible condition that the crop can get the larger proportion.

The inexperienced farmer is, however, still apt to think they will run out his soil, and one grower when told by a fertilizer agent how concentrated his goods were, mentioning he could carry in his coat pocket the necessary equivalent of a load of compost, was promptly told he could probably carry the resulting crop in the other pocket. However, experience has now disproven these foolish assertions. In the first place, to make a good crop the plants must be fed a well balanced ration and a great risk is incurred by applying a fertilizer that is deficient in any one of the three necessary ingredients; and unless one is fully aware of the fact that the element left out in the fertilizer is already abundantly supplied in the soil, he is apt to suffer a decided loss.

A careful analysis of any given soil will frequently fail to disclose even a trace of ammonia, potash or phosphate, and as

our crops are very valuable, it would be fallacy to run the risk, on account of saving a few dollars, of omitting one or more of these valuable ingredients. However, in case we are fully aware that our soil contains great quantities of any one of these ingredients, as for instance we know that ammonia is overabundant in Everglade muck land, we can dispense with this most expensive part.

Foremost among the advantages to be enumerated to the credit of commercial fertilizers is that, being in a concentrated form, they are much more easily handled and applied, and it therefore costs much less to produce a crop and the grower can grow a much larger acreage; moreover, since we are aware of their contents we are enabled to feed just the right proportion of the three necessary elements. This knowledge also allows us to figure to a nicety just how much a ton of fertilizer is worth in the market, as we know the exact value of each of the component parts. It so happens that the element that appears to be the most plentiful in the average fertilizer is also the most expensive and the hardest to keep when we have it. I refer to nitrogen, this element being so volatile that it will leave any substance it happens to have become a part of much more readily than any of the other ingredients enumerated. It will, if in an available form, mix readily with water, or if a component part of a combustible bulk, will escape into the air at once in case of fire, or even if it should come in contact with extreme heat. Thus, a great portion will leach out of the soil should it be subjected to a long heavy rain, or will escape into the air from a fermenting compost heap, should the latter become exceedingly hot. It will, however, unite readily with dry earth, hence it is advisable to place a layer of dry pulverized muck or earth over fermenting compost heaps for protection. Phosphate and potash, on the other hand, will be retained in the soil to a much greater degree, and being minerals are not combustible.

We have in this State great mines of phosphate rock which are mined and placed on the market after having been ground and made available by dissolving with sulphuric acid. This form is

largely used by all fertilizer manufacturers as it has the advantage of cheapness. A number of experiments have lately been carried on with finely ground raw phosphate called "floats," which while not strictly available can be made so by adding lime and potash to the soil. They seem to be successful in this, that they do not add acidity to the soil, thereby doing away with the sulphuric acid which, added to our already sour soil, has a tendency to make its ingredients still more unavailable.

The other chief source of phosphate is from raw and dissolved ground animal bone, this being a very desirable source and one much used in the more expensive brands of goods, as it has a beneficial per cent of lime, and considerable ammonia, and is on this account preferred by many.

All ash has also a per cent of phosphorus, and this being very finely divided, is easily taken up by plants, hence is very favorably looked upon by the agriculturist. Ashes also contain a per cent of potash, besides lime in carbonate form, both of which are essential to plant growth; in fact, this form of potash is preferred by many of our best growers to the exclusion of all others. The great bulk of potash is, however, imported from Germany, where it is mined in immense quantities, near Strassfurt. These different forms of potash vary considerably, the high-grade sulphate of potash containing about 50 per cent of the pure article and is usually preferred on account of its being free from salt and other injurious substances. Another grade containing a high per cent of potash is the high-grade muriate of potash which analyzes similar to the high-grade sulphate, but contains considerable salt which keeps it more or less damp and is also apt to dampen the fertilizer with which it is mixed. On this account it is not so desirable, as this dampness has a tendency to work on the ammonia in the fertilizer, thus causing some loss, and also causing the fertilizer to cake, greatly hindering in its proper distribution.

Low-grade sulphate contains about 25 per cent of potash, but must be used with care as it contains considerable chlorine, which is injurious to plant life. On the other hand, it is said to also

have some beneficial results in a medicinal way, preventing certain blights and rusts of plants. I think, however, this has not been proven very clearly, but am of the opinion that on sandy soil it is safe to use it in large quantities without injury. Another low grade of potash containing fertilizer imported from the same source is called kainit, which seems to have a decided effect in preventing blights and rusts among tomatoes and other plants, and I would strongly recommend it for this purpose. To get the best results from kainit, it should be applied directly to the land, in quantities of about six hundred pounds per acre, after the ground has been plowed and harrowed once. It should then be harrowed in shallow, allowing the rains to wash it in further; it must, of course, be scattered evenly, all lumps being first broken up finely. As kainit has the power of fixing and absorbing ammonia, it is advisable to add some to compost heaps, sprinkling it through and over them. Being a powerful digestive agent, it is a proper application for swamp lands and should prove of great benefit on the Everglade muck lands. For these reasons kainit, compost and wood ashes seem, each for a separate reason, to have an agricultural value greater than their chemical analysis would indicate.

The wide awake trucker should look upon his fields as his factory or workship, and upon himself as the live manager whose duty it is to supply at all times the necessary material and conditions to keep these useful nitrogen-producing germs as well as other chemical actions, at work, and he should always bear in mind that they will work just as long as the necessary materials and conditions are at hand. If the land is not supplied with humus naturally, it should be artificially applied, as before stated, or his soil will become sterile and stagnant—a dead, inert mass, which cannot be made to produce profitable crops.

But no matter how eminent the chemist, or how close he may apply himself to his task, it takes the "man with the hoe" to sift out the actual facts, and by his crude methods, ask the soil the question and virtually coax or wrest the answer therefrom. The

chemist's advice, though useful and pointing in the right direction, still remains chaotic and theoretical, and it is left for the agriculturist to extract the final definite results from this state of confusion.

SOUTHERN FLORIDA TOMATO FIELD.

IRISH POTATOES NEAR MIAMI. BANANAS IN BACKGROUND.

CHAPTER XIII.

CULTURE OF TOMATOES.

HE crop of which the largest acreage was grown in Dade County originally to the exclusion of all other varieties of vegetables, is the tomato. Our Dade County tomato has already won for itself a place in the market and the tomato has become so popular throughout the United States that many people now eat them for one meal a day throughout the year. Their beautiful color tempts the good housewife to use them for decorating and this has also considerable to do with increasing the demand.

We have a large number of varieties at present grown in the South; in fact, we no sooner find a new variety of genuine merit than it is superseded by some other variety having still more favorable points. It ever becomes necessary to change varieties for new ones that are more thrifty, hardy and productive, until today we have many that are perfection in shape, quality and flavor. Of course, the flavor is also influenced largely by feeding the plant with properly balanced applications of fertilizer.

The tomato is of such easy growth that it can be grown on practically all varieties of soil in our State. If given proper attention, fertility and moisture, it will grow on the poorest, white drifting sand, on the stiffest clay, and on the best alluvial soil. Our climate seems to be so congenial to this vegetable that the quality is seldom impaired on any of the above named soils. The vigor with which the plant grows, its grasping nature and general immunity from disease, allow it to take advantage of almost any kind of soil or fertilizer, and frequently tempt the new beginner to plant a great surplus in preference to all other varieties of vegetables. It is consequently common in every garden throughout the country.

As an example of its vigor, we frequently find it growing on land to which practically no care has been given whatever, often having only part of the rubbish and saw-grass removed by digging a slight depression with a hoe and putting in a little stable manure or fertilizer and planting directly thereafter.

In case the land is moist, successful crops have been grown by this method, simply applying fertilizer to the surface without working it in, though in case a severe drouth should follow, very little of this fertilizer is assimilated and the crop is correspondingly meager.

The careful grower will plow his land and thoroughly work it, striking off the rows from four to six feet apart according to the variety and the nature and fertility of the soil, apply three to four hundred pounds of a fertilizer, such as is commonly used for vegetables and containing a high per cent of potash, and thoroughly work this in with a spike-tooth harrow some five or seven days previous to planting.

Seed Bed.

In selecting a location for a seed bed, it should be done with a view of having it close to the field in which the plants are finally to be grown; therefore, choose a strip if possible directly alongside or in the field to be planted. This should, of course, be thoroughly pulverized and enriched, using a liberal application of fertilizer, rich in ammonia. For seed beds about double or treble the quantity of fertilizer ordinarily used should be thoroughly incorporated with the soil to the depth of several inches. In case the season be cold or backward, or inclined to be rainy, an additional heavy application of finely pulverized compost should be added. This should be left to soak with the soil for a period of six or seven days before the seed is planted. Great care must, of course, be taken to see that the proper varieties are used and that the seed has strong germinative powers. It is best sown with a seed drill, such as has come into use by the truck growers in the North for sowing the different varieties of vegetable seed. The seed should be sown very thinly, with a view

of growing not over two plants to the inch of row. The rows should be placed from ten to fourteen inches apart, and the seed-bed should be amply large enough to grow approximately twice as many plants as the trucker contemplates setting out. This surplus, should there be any, can generally be disposed of at a remunerative figure to other growers.

Covering of the seed should be done very lightly, from one-eighth to one-fourth inch of soil being applied over the seed. These seed beds should be sown fortnightly throughout the tomato planting season, so the grower will at all times have a surplus of fine plants on hand. Then in case a field should suffer by frost, he is in a position to replant at once. This seed-bed at all times should be kept thoroughly moist, and particular care must be given to this until the sprouts show above the surface of the ground. As soon as the seedlings show above the ground, any part of the bed that came up too thick should be thinned out at once, otherwise the plants will be leggy, and will not stand transplanting well. In case of extra heavy rains after the plants are up, a light cultivation should be given, and a light application of nitrate of soda applied at once. I have also found it advisable to apply a dusting of sulphur to the surface of the beds before the last raking, thus preventing to a great extent the disease known as "damping off."

I consider well grown plants, the most valuable adjunct to the tomato crop. They should, if properly grown, be six or seven inches tall and the diameter of a lead pencil when five or six weeks old, the weather being favorable.

Great care must be taken in removing them from the bed to see that they are not bruised, or allowed to lie exposed to the sun or weather; in fact, I find a tender young plant will stand exposure to the air and sunshine about as long as a fish can ordinarily be kept out of water without succumbing.

I find it a splendid idea to remove the entire lot of plants which you contemplate setting out for one day's work, early in the morning while the dew is on them, packing them rather tightly in boxes and storing them in a shady place with canvas or burlaps

thrown over them. Should the weather be very warm with considerable sunshine, it is preferable to plant after three o'clock in the afternoon only. If the land be new, I would advise by all means to plant with compost in the hill. Well rotted compost should first be carted to different parts of the field and there thoroughly saturated with water. My method is then to have the help drop a fair-sized handful to each hill, and at once press this into the furrow with the ball of the foot. I prefer planting about three to three and one-half feet apart in the row, the rows being five or six feet apart.

This compost can be dropped during the entire forenoon and the planting accomplished in the afternoon or evening. It is best done by lifting with the four fingers of one hand the compost out of the furrow, putting the rootlets of the plant thereunder and at once pressing the soil back to the original position with the foot, thereby squeezing the liquids contained in the compost around, through and under the rootlets. I have frequently planted as many as 20,000 plants in one day by this method and the loss was less than one-fourth of one per cent.

I lay particular stress upon the necessity of using great care in procuring an even stand, for with this even stand and with strong plants, other conditions being right, we practically have our crop half made. Great losses are annually incurred by planting spindling, tender or overgrown old plants, and I feel that I cannot emphasize too strongly the importance of being careful to have all the above conditions right.

In the introduction of new varieties, we owe considerable to the Livingston Seed Company, of Columbus, Ohio, for having produced a number of varieties of great merit and I will venture that more than one-half of our successful tomato growers have grown varieties the seed of which was produced by these progressive people. Among their latest and most promising introductions are the Globe varieties; these have everything that is desirable as far as quality, carrying capacity, size and shape are concerned.

I would advise all growers in experimenting with new varieties

to go slow, plant only a package or two and thoroughly exploit their merits before planting them for a general crop.

In making applications of fertilizer great stress must, at all times, be laid upon the advisability of supplying the plants with an abundance of potash, and I find this has a great tendency to prevent blossoms shedding during the growing season. To such an extent have I found this to be the case, that I now use as much as eight to ten per cent of potash in the first application and continue with this high grade throughout the season. The best growers here frequently use as much as a ton and a half of high-grade commercial fertilizer, and I think it pays at all times to supply our plants with a superabundance of nutriment. Applications of fertilizer should be made every ten days throughout the growing season, being careful not to apply the fertilizer close to the base of the plants; a rule being to stay away from the stem of the plant a distance corresponding to the length or height of the plant itself, applying each successive application in a circle to the outside of the one previously made. It is not necessary to incorporate the fertilizer to any great depth with the soil—it should be worked in rather shallow near the surface—but great stress must be laid upon working it in, thoroughly incorporating it with every particle of the soil.

Do Not Pick Tomatoes Until Well Matured.

Too much importance can hardly be attached to this. Don't pick a single fruit until it is thoroughly filled out. Some little experience is required by the novice to tell exactly when the fruit is properly filled out and should be marketed. It is, therefore, advisable to pick a few tomatoes and lay them aside in a shady place to see just how soon they will turn color or ripen. They should, if well filled and picked at the proper time, show color in about five days after picking and should turn red, ready for the table, in about eight days from the time they are taken from the vine. Of course, the time of the year that the crop is growing has considerable to do with the above, hence they must be left on the vine until they show color early in the

season or in midwinter, and must be picked correspondingly earlier as the warm season advances. A tomato that does not color when ten days off the vine, is not fit for food.

Great care must be exercised that they are not chilled in transit, and in the early part of the year they should be protected from cold weather. A tomato once chilled will never perfectly ripen up, and for this reason it is advisable in midwinter to ship all tomatoes by the water route if possible; the damp warmth of a steamer seems to be congenial to their proper coloring and ripening. Later in the season, when hot weather advances to the North, it is preferable to ship them by rail.

In crating and packing tomatoes, the novice is apt to include in what he considers his best pack, everything that the good housewife would ordinarily save for the table. This is a great mistake. Our buyers have grown very particular and tomatoes must be very carefully sized. All packages of the ordinary six-basket-carrier type containing 144 tomatoes, or twenty-four to the basket, are classed as fancy. They must be perfectly free of blemish, such as spots, scratches, cracks, corrugations and worm holes. They must be just absolutely perfect.

In case the tomatoes are picked by careless help and any have been taken from the vines that are not full and plump, they must be culled from this pack regardless of size. Of course, tomatoes that are overgrown, say of such a size that they will not pack uniformly in the baskets, or so large that they would pack only 72 to the crate, must be plainly marked as such. It is preferable to mark the exact number of tomatoes upon the outside of each and every crate packed.

The second size of tomatoes, commonly called 180's as indicated by the number, are a variety which are ranked as seconds or choice. They are in growing demand throughout the North, even by the epicures, being of fine size for slicing. Inferior varieties, such as culls, had best be left out of the market altogether, as they have a decided tendency to lower the market and prejudice the buyer.

I have found on certain occasions when the growth is extra heavy, that it is advisable to prune out or cut back the vines, and have frequently found a corresponding increase in the number of crates of tomatoes produced per acre, to such an extent, in fact, that two-thirds or more is added to the crop. In other cases, however, when the growth is not too rank, it does not pay to prune, and as we are generally burdened with a great amount of work at this time, I think it is advisable to plant additional areas, rather than to resort to the laborious task of pruning.

Beautiful smooth fruit can be grown, and it seems rather more uniform and free from insects, by driving stakes and tying the vines thereto. This, however, doubles the expense and therefore is not practiced to any extent in this section.

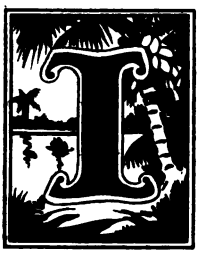
It is necessary at all times to give thorough applications of Dry Bordeaux Mixture with Paris Green to the seed-bed, dusting it over in liberal quantities every three or four mornings during the entire period of growth.

Great stress must be laid upon the advisability of making thorough applications of fungicide and insecticide throughout the early stage of the growth. Do not wait until you see the ravages that insects make upon your crop, but apply the remedy before they have begun to bloom and keep at it until a few days before you pick your last crop.

In case worms, leaf-eating or fruit-eating insects appear, apply the bran remedy. (See chapter on Insecticides, etc.)

CHAPTER XIV.

CULTURE OF POTATOES.



N selecting a piece of land on which potatoes are to be grown, care must be taken to have such soil as will drain very quickly after a heavy rain, potatoes being very susceptible in this respect. I have frequently known crops to be entirely ruined by being inundated for only a few hours. This is especially true when the seed is first put in the ground.

Probably the best land for this purpose is dark, heavy alluvial soil that contains a great amount of humus, with a subsoil porous, but not leachy. An ideal potato soil is also found in the glade clay, or what is locally known as marl, provided it is of a kind that is covered with a heavy growth of grass and contains considerable humus. The class of marl near the Coast that is known as "front marl," which is affected by salt-water tides, is undesirable; the salt though making a nice smooth potato, at the same time renders it unfit for food by making the potato soggy, so much so that you could not sell it to the same customer twice.

For this same reason, heavy applications of muriate of potash or kainit are to be avoided on potato land.

The land should be deeply plowed—using a turn plow for this purpose—thoroughly disked and worked up into the finest possible seed-bed. For this crop, it is best to plow the land just in advance of planting time, as potatoes thrive better in a very porous, loose, newly-thrown-up soil. Remove all obstacles such as trash, weeds or debris of any kind. Furrows should be struck out about eight inches in depth and not less than twelve inches in width. It will be unnecessary to say that these must be straight, for we hope the contemplative truck grower will have sufficient pride to always see that all his rows are laid out as straight as possible,

thereby avoiding an eyesore to himself and to any possible visitors in the future, besides being of easier culture. After these furrows have been laid out to an even depth throughout their entire length, a heavy application of fertilizer should be applied. This should be composed of blood and bone, sulphate of potash and nitrate of soda, ground tobacco, castor pomace, etc. Ammoniates should be of an organic form chiefly, having them analyze for this country rather high in ammonia,* say about 6 per cent; phosphate 6 per cent or 7 per cent, and potash 9 per cent or 10 per cent. As potatoes are a very short-lived crop I deem it generally advisable to use all of the fertilizer at this first application, also for the added advantage of enabling the grower to work it into the soil in a more thorough manner than would be possible if later applications were made. After this is thoroughly mixed in with a tooth or scratch harrow (it should be incorporated in the soil to a depth of two or three inches) and we find that we have closed our furrow by these repeated workings in the soil until we have nearly filled the original depression to the level of the surface of the surrounding soil, a narrow blade should then be inserted in the center of the original furrow, being careful in this instance, also to keep a straight uniform line, and strive to hold up the tool in such a manner as not to penetrate further than about one-half of the depth of the original furrow. The potatoes are then planted according to variety from eight to fourteen inches apart in the row.

Another method, which, though new, gives great promise, is to plow two furrows, or rather scoop two furrows, about a foot apart, add the fertilizer at about the rate of one ton or over per acre at the first application, thoroughly mixing it as before stated, afterwards plowing out this middle which was left originally between the two lines and planting the seed in this small furrow. By this method, one can plant immediately after the preparation of the land and avoid any danger of the fertilizer burning the seed, as the potato does not come in contact with the same. This has the further advantage of leaving a furrow with a slight depression at each side of the plant where a later application can be applied when desired.

* *See last part of Chapter VI.*

Our best growers are proceeding with the method last named, some planting the potatoes very thickly in this row, say four to six inches apart generally, dropping single eyes. This is rather an intensive method, but seems to have great promise, as crops of 125 barrels or over per acre have been made by this process. Where large areas are planted a potato planter should pay well.

The varieties most uniformly grown in this part of the State and which have proven most successful, are the Bliss Triumph and Rose No. 4. We wish to lay great stress upon the proper selection of the seed. We have made numerous tests with seed grown in various parts of the country from Maine to Minnesota and as far south as those grown directly in our own locality, but have found to date nothing that has the vigor of those grown in Maine.

Great care must also be taken to see that the varieties procured for seed purposes are free from any of the potato diseases, such as blight, rust, scab, etc. For my own planting, I prefer to have a potato of good large size, and I advocate cutting these to single eyes. Next in choice, I would have a small potato, say the size of a hen's egg, and this planted whole. This mode of planting the whole seed is particularly advisable should the soil be inclined to be overly moist, as they will not rot so readily if uncut.

Should potatoes show any sign of rust or scab, it would be advisable to immerse them in a solution of corrosive sublimate or formaldehyde. In my own practice, I rather prefer the former, using two ounces of corrosive sublimate to fifteen gallons of water, immersing the potatoes therein for about ninety minutes before cutting, sprinkling them liberally with flowers of sulphur before planting. After several sacks have been immersed in this solution, it will be necessary to add water of the same consistency from time to time to strengthen the solution. This process seems to have the additional advantage of protecting them from rot and injurious worms, and also has a tendency to protect them from fungacious attacks. For these reasons, I deem it advisable, even

though potatoes are not scabby or rusty, to strew them liberally with sulphur.

Cultivation should begin as soon as the sprouts show above the surface of the soil. If the soil is inclined to be overly moist, cultivation should be rather deep, but in case the soil should be very dry, it is preferable to cultivate only very shallow. As soon as the rows can be plainly seen, a side dressing of fertilizer can be applied if such an application is desired.

Much has been written about the advisability of hilling Irish potatoes, and I have found for various reasons, among which are ease of cultivation and digging, that a slight hill of earth towards the vines when they are about six inches or more in height is a great advantage as it covers many growing weeds and makes digging easier.

Should there be any indications of rust or blight or should the land have been used for potatoes or tomatoes in previous years, it is advisable to apply Bordeaux Mixture liberally throughout all stages of growth, to protect them against this destructive fungus.

Throughout the northern part of the State, it has been customary to market potatoes in barrels. We, however, deem it advisable—since we grow such a superior article in this part of the country that it usually brings a very much higher price—to pack our potatoes in crates or hampers. I think by this method our growers realize at least 30 per cent more for their crop. It is a good idea to establish a precedent of this kind as we can then, by branding our goods, establish a market for our own particular country brand. They should be very carefully sorted and graded, all those that are larger than one-and-one-half inches in diameter being graded as firsts.

Of course, if there should be any potatoes grown that are overly large, rough or corrugated, they must also be sorted out and sold separately. Absolutely nothing but perfect, smooth, bright uniform potatoes should go into the first grade.

Those that are one-and-one-half inches down to one inch in diameter can be put in as seconds. There is also a limited demand

for those that are an inch or less in diameter, known as cream potatoes; these, of course, must be packed separately. The demand for potatoes, even to the present day, in our section of the country, has been so strong that it has been impossible to fill orders of local buyers. Returns per crate, taking into consideration the comparatively small outlay particularly for labor, have been very flattering, and our Dade County potato has already an enviable place in the select markets of the North.

We have grown potatoes frequently in this country that were not only the finest in appearance, but also in quality, of any that I have ever seen grown in the various States of the North, in which I have also had considerable experience heretofore.

I remember on one occasion of having on exhibition, at our annual county fair, Dade County potatoes of the variety known as Early Ohio, which were so bright and waxy in appearance that I was frequently asked if they were not artificial, made of wax in imitation of candied fruits, etc.

It is, of course, preferable at all times to dig potatoes during the dry weather, and I wish to emphasize the advisability of picking them up from the soil without exposing them to the rays of the sun or the elements of the weather for more than a few hours at a time, high winds and hot sunny weather being particularly injurious to their appearance and quality.

CHAPTER XV.

CULTURE OF PEPPERS.

HIS is one of the staple articles grown largely in midwinter in this section of the State. Not only is it a staple, but one of the very best paying vegetables grown here. I have often marveled where the great amount of peppers was consumed. It seems that in spite of the increasing acreage grown annually here, the demand is still far ahead of the supply. We Americans are not slow in picking out the best dishes of our foreign brothers and adapting ourselves and tastes to them. A number of years ago, the pepper industry seemed to be largely controlled by a very few growers in this section, but now it has spread and we are enabled to ship them in car-load lots.

As advised in regard to other varieties of vegetables, great care must be taken in the selection of the seed and proper varieties. The Ruby King is probably that which is most widely known here. Of late years quite a few of the variety known as the Chinese Giant have also been grown. The tendency seems to be towards growing thick-fleshed heavy varieties that will remain in a green condition for the longest possible time and stand shipping much better than the thin-skinned and tender varieties.

Seed-beds for this vegetable should be planted as early as August 1st. They must be planted on a rich, moist, well prepared bed and sown thinly in rows similar to those already described for tomatoes. They will be ready to plant out in the open field in about six or eight weeks from the time of sowing, if properly cared for. They are then planted directly in the field and are generally set about twelve to eighteen inches apart in the row, the rows being about three feet apart. If they have not been

grown too thickly in the seed bed, each plant can be raised with a quantity of earth, as they have a strong tendency to collect a solid bunch of earth if they are carefully removed. Particular stress should be laid upon the importance of this, and for this reason the bed should be well watered not only the evening previous to their removal from the same, but also copious applications of water should be given in the morning before taking them up. If they are well firmed in moist soil very few plants will be lost in transplanting. However, if the soil should be at all dry or the weather unusually warm, they must be well watered upon being transplanted. Great care must be taken not to plant them too deep, and while they can be planted slightly deeper than they stood in the seed bed originally, they must be planted shallower at all times than the tomato.

The land upon which they are to be set out should receive, about a week or ten days previous to the planting, an application of 500 or 600 pounds of vegetable fertilizer and this should be thoroughly worked in the rows. Planting, however, can be done immediately after a rain, being, of course, careful to again render thoroughly fine and loosen the soil directly before setting out. Applications of fertilizer should be given about two weeks apart throughout the growing season, which in this country would be from September 1 until May 15 following. In fact, I have sold peppers profitably as late as June 20, depending largely upon the seasons in the North.

It is customary to give a liberal application of fertilizer, say 500 or 600 pounds, after each picking, and this should be kept up regardless of prices, which are likely to fluctuate considerably throughout the season. I have frequently seen them sell as low as $1.00 per one-half barrel up to as high as $6.00 for the same crate, inside of thirty days. It is, therefore, advisable to keep up steady applications of fertilizers, as they will stop bearing at once should this process cease. The wise grower will therefore apply fertilizer regularly, whereas his more ignorant competitor will often cease putting on fertilizer should the price become very low, and the man who is up to his business will gain by having a heavy

crop when the price advances. It is advisable to use for this crop an application containing 6 per cent of ammonia,* 6 per cent of phosphoric acid and 8 per cent of potash. Without the latter they will not have good shipping stability.

Peppers are subject to attack by various fungous diseases, foremost among which ranks the disease known as black rot. Early applications of Bordeaux Mixture will thoroughly annihilate these diseases, or rather prevent them entirely, and it is a wise precaution not only to keep the foliage covered with Bordeaux Mixture throughout the growing season, but also to apply it in dry form upon the seed-beds. Should this be neglected, often great loss is incurred. This disease not only attacks the plant, but the fruit also, at times proving very disastrous to the crop, not only in the field, but in transit. All deformed or red fruit should be picked and removed from the field as soon as it appears.

Seed should always be procured from those that make a specialty of this branch of business. In fact, I have found it to be very profitable to stake some of the best plants, and save their entire output for seed.

Picking should begin as soon as the fruits are plump and hard. Many are tempted, as formerly recited in regard to tomatoes—sometimes on account of the high prices—to pick the fruit before it is well developed. This prematurely picked fruit will simply wither and rot and have a disastrous effect upon the market. The grower should always bear in mind that it is much more profitable to keep a high standard of excellence in all his products and try as far as possible to influence his neighbors to do likewise.

Peppers should be very carefully assorted and packed in six-basket-carriers, preferably for the fancy article. However, when the prices become low, it is often more profitable to ship in egg-plant or one-half-barrel carriers, the freight being the same in both cases. You can by this method bring much larger quantities into the market at the same freight or express rates. Culls must be sorted out and shipped to nearby markets and then only if the price should warrant such shipments. It is preferable to leave

* *See last part of Chapter VI.*

these out of the market altogether as they have a tendency to deplete prices.

The peppers can be picked once every ten days or two weeks, if the weather conditions are favorable. There is no vegetable grown that responds better to thorough irrigation—sub-irrigation in this case, as in most others, being preferable. The depression around the stem ends of the peppers, having a tendency to accumulate considerable water, the overhead system of irrigation often proves detrimental and cannot be recommended. Care should be taken not to pick the peppers when the dew is upon them, for this same reason.

Much depends upon the proper packing. A crate that is well packed with uniform, well matured peppers (being careful to exclude all those that have a tendency to show defects) will often bring as much as 50 per cent more on the market. The number of crates realized per acre of this vegetable is simply enormous, under the most favorable conditions 1,200 crates being nothing uncommon.

It is conceded by our best growers, that a net price of 75 cents per crate is very profitable on the average. They are one of the crops that can be very profitably grown on pine land and are often planted between the citrus tree rows.

On account of the heavy applications of nitrogenous fertilizer,* they should only be planted among very young citrus trees on muck or hammock soil as those heavy applications of ammonia would prove detrimental to older trees upon the last named soils, which are already overabundantly supplied with ammonia.

Great care must be taken to see that the land is properly drained of all surface water in cropping peppers, as a small amount of standing or stagnant water will destroy the entire crop.

* *See last part of Chapter VI.*

PEPPERS—A GREAT MONEY CROP.

FIELD OF EGGPLANTS.

CHAPTER XVI.

EGG PLANTS.

ROBABLY the most profitable crop and that upon which the greatest number of dollars has been realized per acre, is the egg plant. The prices realized at times when this fruit is scarce are almost beyond belief, instances having been known where they have been sold as high as $20.00 per crate. It is at times one of the hardest vegetables to grow and few growers are uniformly successful in its production. I have often had a field, in which I considered the conditions ideal for growing this vegetable, and in which I had taken the greatest possible pains in producing plants, entirely destroyed by some of the diseases (of which we really know very little) attacking it. Sometimes the entire crop was destroyed at once, and occasionally by degrees, first one plant wilting and then another until finally the entire patch was destroyed, producing very little or no fruit at all, and such as was produced being of an inferior size and quality.

Egg plant is probably grown with greatest success upon fields either entirely new or that have been preceded by one of the leguminous crops the previous summer, such as cowpeas, velvet beans or beggar-weed. I consider that the ideal conditions exist where a heavy crop of velvet beans has been grown the previous summer. The seed-bed should be prepared in early August, being careful to give the plants plenty of room in their early development; in fact, a spindly or leggy plant had better not be planted at all. The great value of the crop makes it such that great care should be taken to produce only from the very best selected seed and under the most propitious conditions. It is essential for this reason to place the seed-bed upon similar new soil so that there is no possibility of infection of diseases such as root knot (nema-

todes), blight or rust. It is a wise precaution to keep these seed-beds thoroughly dusted with Bordeaux Mixture throughout their entire early growth, a semi-weekly application being desirable. When eight weeks old, we should have a plant with a stem diameter nearly the size of a lead pencil. These should be carefully lifted, after first seeing that the bed is thoroughly watered both the evening previous and the morning preceding their removal. A small trowel is very useful for this purpose and it is essential to remove them with a chunk of earth several inches in diameter. As previously explained for peppers, they should not be planted deep and should invariably be put in soil upon which there is no possibility of an accumulation of stagnant water at any time during their future growth.

A heavy application, probably 600 to 800 pounds per acre, of vegetable fertilizer, analyzing 6 per cent ammonia,* 7 per cent phosphoric acid and 8 per cent potash, should be thoroughly incorporated in the furrow or with the soil a week or ten days previous to setting plants in the field. It should be applied to the drill about a foot in width, the rows themselves being put about five feet apart. The plants should be set in the row a distance of three feet apart. Heavy applications of fertilizer should be applied every fortnight, and thoroughly incorporated to the depth of one and one-half inches in the soil, in a circle around the plant. They being very susceptible to the ravages of the red spider and varieties of the green aphis, regular applications of whale oil soap or very finely ground tobacco dust should be applied to the seed bed; the latter when the dew is on. Light sprinklings of tobacco dust should also be applied to the older plants as often as once a week, various kinds of worms being apt to attack the tender young leaves during the early stages of their growth.

The varieties most popular here are known as The Florida High Bush, The New York Purple and Black Pekin. The fruit should in all cases be *cut* from the plant, using for this purpose one of the clippers commonly used for cutting grape fruit. The stem should at once be cut close to the fruit so as to avoid any

* *See last part of Chapter VI.*

possibility of their bruising by contact. They should, of course, be picked when they are dry or have no dew upon the vines, great care being exercised to remove any sand that might stick to the fruit on account of heavy rains, as the slightest scratch upon the surface of their tender purple skins is apt to show when they arrive in market.

Great care must also be taken to see that the fertilizer at all times contains the requisite amount of potash or they will lack keeping quality. They are packed in assorted sizes; the sizes most preferable are known among commission men as 36's or 38's. The packages should be branded with the exact number contained in them, and those shipped as fancy should be free of all blemishes, spots or uneven surfaces. They should be picked before the seed in them become hard. Great care should be exercised at all times to have applications of fertilizer given at regular intervals so as to insure uniform steady growth throughout the entire season.

The demand in the North has been such that shipping can begin by October 15 and be continued at remunerative prices throughout the season until the middle of the following June. Great quantities of egg plants are consumed throughout the United States, shipments being made as far west as Denver and as far north as Canada, the southern limit beginning directly at our own door.

The larger and more uniform varieties generally bring the highest prices in our more Northern markets, New Orleans consuming a great many of the packages containing the small sizes. As many as 1,200 crates per acre are frequently produced of this vegetable.

No vegetable grown in this section responds to the advantage of irrigation better than the egg plant. It thrives well by both the overhead and sub-irrigation systems. If the ground is thoroughly drained and properly sweetened by applications of fertilizer, by tillage and aeration, egg plants will thrive best with copious amounts of water. Our largest crops are made late in the Spring, when our torrential rains of the tropics begin falling,

thus proving that there is little danger of our overdoing irrigation, provided ample drainage and other conditions are right. In dry seasons, they can be watered almost every other day. I prefer a heavy application weekly, giving light dustings of sulphur or tobacco directly after each application, particularly if the water is applied by the overhead system.

EVERGLADE BEANS.

BEAN PICKERS.

CHAPTER XVII.

CULTURE OF BEANS.

NOTHER very profitable crop for our market is the ordinary wax or green snap bean. Great areas are yearly planted to this valuable vegetable, it being one of the quickest and easiest crops to produce. However, when we have the crop grown, we are only half through, the picking being considered by those who have experienced it often the larger half of the work. Be this as it may, it is a very remunerative crop, bean growers being among those who frequently realize the largest profits per acre.

A rather light, well drained soil is considered best for this product. The land should first be deeply plowed, preferably in the early fall, allowing it to settle thoroughly, by having at least a part of the late tropical rains fall upon the land. Frequent shallow workings should be given with a disk or harrow, say every ten days. Plantings are made for our Northern markets as early as October 1.

The popular kinds known and called for in the Northern markets are the Refuge, or "1,000 to 1," and the Valentine varieties. Of wax varieties, the Davis Kidney or Hodson Wax are foremost, the latter variety being particularly adaptable to this country and climate, producing a bean which will not only carry well, but which is of a very superior quality.

Furrows are spaced at about 30 or 36 inches apart, green varieties usually being planted somewhat nearer together than the wax. Fertilizer is applied at the rate of about 1,000 pounds per acre directly to these furrows, it being well worked in some ten days or two weeks in advance of planting time.

The fertilizers used are usually of a highly nitrogenous* character, cottonseed meal being a very popular content for this purpose. My own experience has led me to believe that a bone-meal basis has more lasting qualities, and for this reason I have used this fertilizer as a basis. To prevent rust, I usually add about 200 pounds of kainit to this formula. Cottonseed meal and kainit are used exclusively by some of the best growers. This is an old formula, and is to be recommended.

After this fertilizer has become thoroughly incorporated with the soil and is left to decompose for this length of time, the furrows may be opened up if it is advisable to plant the seed by hand. About one and one-half bushels of seed of the green variety and about three pecks of the wax variety are used to an acre. If the seed drill is used, it must be set to plant rather thickly for the green variety. I have usually been obliged to use my seed drill twice through each row to get in the required amount of seed. If you have a good strong strain of seed, they should show above the ground the third day after planting, provided they have not been planted too deep, which is considered rather injurious to this crop, some of the vitality being lost in this way. About one inch below the surface, soil and moisture being right, is what is usually required. In very wet seasons, however, they must be planted shallower.

Cultivation is given at once as soon as they show their seed-leaves above the ground. This is preferably done with a hand cultivator near the row, breaking out the middles with a spike or spring-tooth cultivator. As soon as they show their character leaves, they should again be thoroughly worked, giving them what additional fertilizer they require at this second working. Throw the soil lightly toward the vines after this application. Should the ground be inclined to be wet, three cultivations may become necessary, which last should be done very shallow, otherwise injury to the roots will ensue.

* *See last part of Chapter VI.*

If the crop be an early one, there is some danger of the bean weevil attacking the vines. This can be prevented by early applications of finely ground tobacco dust, the kind that is sold for insecticides being used. To prevent both mildew and ravages of insects, I would strongly recommend an application of sulphur, lime and tobacco, equal parts. Should frequent heavy rains have a tendency to wash off these insecticides, a second application of solution of arsenic of lead should be given, being careful not to get this mixture too strong, as bean leaves are very easily burnt by poisonous substances. One good, thorough application generally suffices to destroy these bean-leaf eaters, or at least to thin them out so that very little damage will be experienced from them afterward.

About ten days from the time the first blooms appear, if the crop has been properly taken care of and other conditions are right, they will be ready for the first picking. Great care must be taken not to handle the vines when the dew is on them or when wet after a rain. They must be handled very carefully, and such pickers as are apt to lay the vines over or wallow them around in a miscellaneous way should be watched very closely. Such treatment of the vines is liable to curtail the crop by 50 per cent. Great care must also be taken not to pick any undersized beans, or your next picking will be very light, as you will find. They will be ready for the second picking in about two or three days. Our best growers usually pick every second or third day, and are thereby enabled to fill their packages with well matured, tender beans at all times. Such beans will probably bring 30 per cent more in the market than the carelessly picked article, and often two or three times as much as those that are left to grow old or are given indifferent attention.

Picking is best done by paying so much per crate or pound—usually one cent per pound in this country. The product should be protected by burlap from the direct rays of the sun. Each picker should be required to deliver his beans directly to the packing house from the nearby field. They are then carefully packed in bean hampers, any defective, mutilated or overgrown beans

being excluded from the pack. About 29 or 30 pounds are usually packed in the ordinary bean hamper. Should the packer be inexperienced, it is best to weigh out the quantity of beans and pack a few hampers so as to familiarize himself with the required amount to put in each crate. The upper layer should be nicely topped off so as to have a pleasing appearance to the eye. This will go a long way toward selling the bean in its future market. Probably the greatest quantity of our beans are sold f. o. b. in our local markets, numerous buyers being here annually, interesting themselves in this valuable product. They usually sell here through the season for $2 to $3 per crate, f. o. b., and are considered a very profitable crop at this figure.

The amount grown per acre varies with the variety, selection of soil and other conditions, 200 crates per acre being considered a good average crop by those who are conversant with the industry.

The vines are a very important adjunct to the value of the general crop, and if carefully pulled at the last picking are worth at least $20 per acre as feed for horses or cattle. If carefully cured, the leaves are worth at least as much as wheat bran for animal food. They are best gathered by pulling up the vines and shaking the soil therefrom and putting them in small piles, generally putting four rows in a windrow. Then after they have cured on one side for a few days, they should be turned early in the morning, when there is still a slight dew upon them; the other side being exposed to the sun's rays, they will dry very quickly. They should at once be put under cover, about a peck of salt being added to each ton of fodder thus stored, and thoroughly sprinkled between the layers as they are laid away. If grown for the early market, it is often very profitable to follow them with a crop of cucumbers.

Beans are also frequently used as an auxiliary crop between Irish potatoes. In this case, the rows should be planted about three and one-half feet apart. After they have had their second application of fertilizer, or after they show their character leaves, potatoes are planted between the rows. The beans will then be

ready for picking before the potatoes need their second application of fertilizer. After the beans are picked, a very heavy application of fertilizer is added to the potatoes at once, in turn planting another crop of beans between these rows, which will need no other fertilizer. By carefully digging the potatoes, you will in this manner give sufficient cultivation to the last crop of beans. I have frequently realized as high as $2,000 per acre from this accumulation of three crops.

CHAPTER XVIII.

CULTURE OF CELERY.

MONG all crops of vegetables grown, celery is perhaps the one from which the largest income can be derived.

There are several plans advocated by which it is grown successfully, each in itself radically different from other methods, and each claiming equal success. The most intensive cultivation of celery is carried on at Sanford, Florida, where the system of tile sub-irrigation is largely practiced. The following extract from an address by Hon. J. N. Whitner will give you a better idea of the Sanford method:

"Civilized man, with rapidly increasing millions to feed, with intensive farming, which makes it necessary to obtain the most and best from his ground, has turned to irrigation. We are amazed at what has been and is being done by private as well as government enterprise. And as this great national convention and exhibition is assembled to tell and show what great things have been and can be done, the far South, even Florida, sends you greeting, and bids me claim fellowship and a part in your labors. We have brought some of our products to show you, and I am sent to tell you of our system of irrigation and some of its results. We know it as the Sanford system of sub-irrigation and drainage.

"Let me describe the system, its operation and theory; then, with your permission, tell you something of what it has done for us. Its possibilities seem limitless. Without an illustration or drawing, a description is difficult to understand or remember. I have, therefore, brought a sufficient number of illustrations, a glance at which will give a full understanding. These are for free distribution at the Florida booth, or will be mailed upon request. Briefly stated, the water is applied through 3-inch tile, laid in par-

allel ditches eighteen inches deep, with a fall of not less than one inch to the hundred feet. The distance between the rows of tile varies according to quality of soil; in our sandy loam twenty-five feet affords effective drainage, as well as irrigation. The more clay and the stiffer the soil, the nearer they should be placed. At the upper end of the tile, beginning at the water supply (with us flowing or artesian wells), and running by the end of each row of tile, is a water main, the cheapest being small sewer pipe cemented at the joints. Between the tile and this water main a joint of 6-inch sewer pipe is used as a stand pipe, connected by a short iron pipe on one side with the main, while on the other is the connection with the tile. It will readily be seen that water turned into the water main, and running by each of the stand pipes, can be turned into as few or as many as desired, in this way irrigating all or any portion of the field. Of course the tile is in short joints, with us one foot in length, and the water finds ingress or egress at the joints, porous tile being largely a myth. At the lower side of the field the tile discharges into a waste ditch, and when the ground is level and the flow of water not too rapid, it will be found that capillary attraction supplies all the moisture needed, even for setting plants, but most fields are equipped with stop boxes at the lower end of tile, and when ground is much broken, these boxes are placed at intervals, as required, and the illustration shows how the water is dammed up to any level required, even to flooding the ground.

"This much for irrigation. It is quite as effective for drainage, being laid on an incline, and water applied by gravity. In case of rain the excess is taken off very quickly, and on our soil if it rains three inches today we can plow tomorrow. This we find is of inestimable value, for with the soil saturated with water, as the small boy would say, there is nothing doing, or as one of you Western farmers put it, 'You can't get no action out of the ground.' The reason of this inertia, as you all know, is that the water excludes the air from the ground. Now, with surface irrigation, and without this sub-drainage, you have to wait for the water to evaporate, which slowly drying from the surface, inch by

inch, lets in a little air from above, while the plants await the life-giving air. With our system, as soon as the water stops running the tile becomes a conveyor of air, which is supplied (so to speak) from both top and bottom. Our system not only does these things, but furnishes warmth from below, and as warm air rises from the tile it has a marked influence on the growing crop, especially in winter, when our most profitable crops are grown, for with us September or October is seed time, and February and March the harvest. You can understand that it matters little to us whether it rains or not, for during the winter of 1906 it rained frequently and in torrents, while the next year we had not a single rain from September 15 to April 5, yet raised equally as good and profitable crops. So rain is not necessary to plant, grow or perfect a crop."

There are usually about two tons of vegetable fertilizer or more applied to the acre, one ton of which is applied and worked into the soil directly before any planting is done whatever, and some ten days in advance of the planting. Fertilizer analyzing a high percentage of ammonia,* usually 6 per cent, with 5 per cent phosphoric acid and 5 per cent potash, is used. Some of the best growers are lately applying as high as three tons to the acre, with encouraging results.

The variety of celery mostly used is *Golden Self-Blanching,* the seed of which usually is imported from France, but is sometimes procured from the best growers in the United States.

The rows are planted thirty inches apart and the plants placed at a distance of three and one-half to six inches apart in the row. The seed should be sown in a well prepared and fertilized bed, which is made eight or ten feet in width and as long as wanted. It is sown rather thickly, the plants being picked out and transplanted when about two inches in height. They are ready for the field when about the size of a finger. Seed-beds are made September 1, and plants are planted out at once upon reaching the required size, into the open field.

In planting the seed, it is customary to rake in or to cover very lightly, great care being taken at all times to keep the surface well saturated with water. Occasionally fertilizer sacks are spread

* *See last part of Chapter VI.*

over the entire bed, after sowing the seed, and left there until the seed has sprouted (generally two weeks), which depends on the humidity of the atmosphere at the time and the germinating condition of the seed itself. This cover is removed during the night and replaced in the daytime. As soon as the first plants show their seed leaves above the ground, copious waterings are given until transplanting time.

Lettuce is often planted between the rows of celery and a remunerative crop is often grown as an auxiliary in this way.

From 900 to 1,200 crates are grown per acre by the best growers. Six hundred pounds of "Blood and Bone" fertilizer are worked in by some of the best growers every ten days after planting. The fertilizer used is largely compost or "Blood and Bone" with sulphate of potash and a little acid phosphate added occasionally.

For blanching, boards ten inches in width are used, they being placed against the sides of the celery rows when they are about ten inches high. A space of about four to six inches is left between the boards for the celery to grow up and blanch in, this according to the size and diameter of the plants themselves. It is figured by the best growers that the cost of production per crate will average, including the crates themselves, about 40 to 50 cents per crate, and $1 is considered a very remunerative price to sell at, though often twice this sum is realized for the product. Celery crates are 8x20x27 inches, outside measurement, and cost about 12 cents each at retail. It requires eighteen men to cut, pack and load a car of celery in a single day; from 350 to 400 crates are packed in a car.

The celery crop can be followed by a cauliflower or bean crop, which will often bring in $400 to $600 additional.

Cucumbers are also frequently planted before or after the celery, of the *Early Fortune* variety, from which a profit of $300 or $400 frequently can be realized.

Celery is grown continuously on lands at Sanford year after year. During the summer, very heavy crops of crab-grass spring up on this land, and from two to three cuttings are frequently

made. The best growers in that vicinity apply ten to twenty cords of stable manure to the acre once in every three years for the purpose of supplying additional humus, which is considered necessary and essential to this crop.

I have grown crops in this vicinity on rather a limited scale, never planting over one-half acre in any one year, as I catered only to the hotel trade and to local consumption. Very fine celery has been made here, the article produced being as crisp and tender as that produced elsewhere. I have realized as much as $1,000 to $1,500 from one-fourth of an acre in this part of the country. Without a doubt, the muck beds situated in the Everglades, when properly sweetened and drained and placed under irrigation, will produce abundant celery for the entire United States during the Winter and Spring months.

MODEL CELERY AND LETTUCE FIELD, SANFORD.

EVERGLADE CUCUMBERS.

CHAPTER XIX.

CULTURE OF CUCUMBERS.

WELL drained, deep alluvial soil, containing a little sand, is best adapted for the growth of cucumbers. It should be deeply plowed not less than thirty days before planting, if possible, so as to give it a chance to settle thoroughly. Rows should then be struck off six or eight feet apart, fertilizer dropped and well worked in hills three feet apart in the row. Should the weather be cold or rainy, it is best to add a rich compost with which considerable cottonseed meal has first been mixed and allowed to decompose only partly, so as to have some heat left in it. This should be dropped in the hill, at least a double handful to each check. It should be worked in with about its bulk of soil and pressed down firmly slightly below the level of the surrounding soil; about one inch of damp earth should then be spread on top and also pressed down and the seeds planted therein.

Should the germination of the seed be in question, it is best to plant quite a number—say ten or fifteen—to the hill. On the other hand, if the seed is known to be good, four or five to the hill will be sufficient. A little sulphur sprinkled on the hill directly after planting the seed will prevent them from "damping off" in wet weather. Immediately after the seed leaves have developed, they should be thinned to two or three in the hill. Tobacco dust of the kind used for insects should be liberally strewn around and under the plants, dusting a little on the under side of the leaves, to keep the fly that produces the green aphis from depositing its eggs. This is very essential, as once the green aphis gets a foothold in your cucumber field, you will never be able to entirely eradicate it. A good handful of rich vegetable fertilizer should

be applied in a circle around the hill about once every week or ten days. At the same time apply a tobacco dusting in the same intervals. As the cucumber leaves begin to show, more tobacco dust should be added, particularly to the under sides of the leaves, on mornings when a light dew has fallen. In about six weeks they will begin to bloom. At this time great care must be taken to protect them against the locally known cucumber worm, and for this purpose I find nothing better than a solution of arsenate of lead, applied as per directions upon the package. They should be dusted once a week following each application with a liberal but not too heavy sprinkling of tobacco dust.

I want to say in this connection that great care must be taken to procure only such tobacco dust as is made and put up as an *insecticide,* there being another distinct quality in the market that is used as a fertilizer, to which considerable potash has been added, which will burn up any melon or vine leaf with which it comes in contact. Should there be any spot or blight, an application of Bordeaux Mixture should be made at once, to prevent the further ravages of this disease.

Cucumbers are advantageously planted directly after we have had a frost in this country; at such times there is very little danger from insects. The insects in this section seem very tender and can stand scarcely any frost whatever; therefore when the cold comes it exterminates or thins them out to such an extent that they do not bother the plants for some five or six weeks thereafter, thus giving us a chance to mature a crop of cucumbers without the expense of sprays and insecticides and their application, and before the insects can do much damage. They often are planted after an early crop of beans, and this compact soil is just right to grow them in.

The *Arlington, White Spine, Livingston* and *Evergreen* varieties are largely grown. A new variety grown at Sanford, by the name of *Early Fortune,* has met with great favor. This is an extremely early variety, retaining its green color for a great length of time, and reaches the market in fine shape. Those

varieties which have a tendency to grow pale green or yellow when half matured should be avoided.

Cucumbers should be picked when about two-thirds grown, and at this stage of growth should run about six dozen to the ordinary cucumber crate. They should be very carefully assorted, putting absolutely no defective or wormy cucumbers in a package that is marked as first class. They should be cut from the vine, not pulled, and must be wiped free of dust and spines before being packed. They must be evenly laid and tightly pressed into the crate so as to avoid the possibility of their becoming loose or shaking upon delivery, as it must always be taken into consideration that they will shrink in transit.

The local markets often pay as high as $1 per dozen for cucumbers in the middle of the winter, our great hotel system here demanding many of these high-priced vegetables in mid-winter. The buyers usually pay from $1 to $4 per crate, f. o. b. Miami, and at this price a handsome revenue per acre is obtained.

I have frequently realized as high as $8 per crate gross in the open market of the North. When cucumbers are well grown, they are one of the most remunerative crops we have.

CHAPTER XX.

CULTURE OF CAULIFLOWER AND CABBAGE.

REAT care must be taken in the selection of the seed of cauliflower. Many unscrupulous dealers place an inferior article upon the market, and, by selling it at a lower price, induce the grower to invest therein. He will invariably find that he has encountered great loss before the season is over. Above all things, cauliflower seed must be well selected. Seed which is grown in France or Germany is preferable. The varieties known as the *Early Erfert* or *Snow Ball* are considered the best.

The seed is sown rather thinly, about one-half the amount being used over a given area that would ordinarily be sown to cabbage seed. It should be covered lightly and kept well moistened. On account of there being considerable danger of the young plants "damping off," it is preferable to sow light applications of flowers of sulphur over the field at the time of planting the seed. The seed-bed for these plants should be prepared similarly to that for cabbage. If the weather is inclined to be cold at the time of sowing the seed, it is best to apply a light application of compost, working it in shallow. The same directions that apply to cabbage, as to setting out and cultivation, apply to cauliflower, taking even greater care to nurse the plants throughout the season and to protect them from any vermin. The little worm mentioned in connection with cabbage is very destructive also in the heads of cauliflower. Should the heart of the cauliflower be mutilated in the least, the result will be that the entire head will be defective. For this reason, great care must be exercised.

To grow cauliflower successfully, the plants should be thoroughly irrigated when about half grown. Then, if the condition of the soil is otherwise favorable, it will invariably make a fine

crop. There is a great demand throughout the Northern markets during the winter season for this vegetable. Great quantities are consumed, at a very remunerative price to the grower. It usually sells, from the holidays until supplied by the home markets in the North, at very high prices, frequently as much as 25 cents per pound being obtained at retail for the same. If the selection of seed and all the other details herein mentioned have been carefully adhered to, as many perfect heads should be grown per acre as can be done with ordinary cabbage. Returns should exceed twice the price that is ordinarily obtained for cabbage. When the heads begin to set, and are about three or four inches in diameter, the leaves should be gathered loosely and tied with twine, being careful not to tie them too tight, and also being careful that there are no insects in the head at this time, as they will otherwise mutilate it and make it unmarketable. In about five or ten days from the time they are tied up they will be ready for market. They should be cut just before the head begins to spread or before it begins to part from the solid form. Should the weather be extremely warm at this time, it is best to lay a cabbage or cauliflower leaf in and over the white portion of each flower or head to keep it from being browned by the hot rays of the sun.

They are cut preferably late in the evening, but should not be cut or shipped when moist from dew or rain. Each head should have the leaves tied tightly over the same before shipping, to protect it from bruises and keep it fresh during transit to market.

They are packed in ordinary lettuce crates, the number in the crate being marked upon the address side of the crate.

They usually bring from $1 to $3 per crate in the Northern markets, frequently selling for twice this figure in our local markets during the season of their greatest demand, which, in this territory, is during the first three months of the year.

Cabbage.

Cabbage is, in my opinion, the most easily grown vegetable in this section of the State. I have known numerous instances

where cabbage seed dropped by the field-side made fine, large, beautiful heads, without a bit of cultivation or fertilizer. This, of course, was only when it happened to drop upon alluvial soil such as abounds in the Everglades. In the selection of seed and growing of cabbage in this country, care should be taken to try to raise only such varieties as do not produce too large a head; otherwise they become undesirable. The mammoth varieties of the North average here such a size as can only be consumed in the larger boarding-houses or hotels, one head making a meal for several dozens of people.

Any of the flat-head varieties, *Brunswick* or *Old Stone Mason,* or *Henderson's Succession,* do splendidly here, producing a head from five to ten pounds in weight, which is amply large for ordinary market purposes or consumption. Seed can be sown any time after August 1st. It can be sown in drills in the usual manner, in a well prepared and fertilized seed-bed, covering it slightly and keeping it well moistened and in a thrifty condition until the character leaves are well developed. It should have an application occasionally of tobacco dust while in the seed-bed, say once or twice a week after the seed leaves appear above the ground, to keep off the flea-beetles and worms, which at times are very destructive. There is a small green or yellow worm which seems to go right down into the heart, devouring it in a short time if some precaution is not taken to drive it out.

As soon as the character leaves have sufficiently developed so as to be, say, an inch in diameter at their widest part, they should be set in an open field, being placed about 14 to 18 inches apart in the row, the rows being about three feet apart. The ground should be enriched previously well with one of our best vegetable manures containing about 6 per cent ammonia,* 6 per cent phosphate and 7 or 8 per cent potash. As soon as the plants stand up well and show a tendency to grow, they should be worked, care being taken not to work too close to the plant with the cultivators. A side application of fertilizer of the same analysis should be applied every ten days throughout their growth, 400 or 500 pounds per acre being sufficient for each application

* *See last part of Chapter VI.*

per acre. Large quantities of cabbage are used here in our local hotels and boarding-houses throughout the season. Cabbage generally sells at very remunerative prices—from three to as high as six cents per pound. Certain seasons, in which the cabbage crop of the North fails, they are marketable in the Northern markets, and at such times the price here is high. Should the partly matured plants be attacked at any time by the green worm, an application of tobacco dust or pyrethrum can be applied to annihilate them. No poison should be applied, as there will be danger of its injuring the consumer. Should there be any cut-worms in the field, the bran remedy should be applied. (See chapter on Insects.)

CABBAGE GROWING IN THE EVERGLADES.

EVERGLADE FIELD OF LETTUCE AND BEANS.

CHAPTER XXI.

CULTURE OF LETTUCE.

ETTUCE can frequently be grown as an auxiliary crop between other vegetables—for instance, between cabbage or between rows of celery or other slow-growing vegetables.

To properly raise a seed-bed of lettuce plants in the semi-tropics usually requires considerable care, as we have a variety of ants which seem to have an appetite for lettuce seed above everything else. I have never been able to bait them with anything that would divert their attention when lettuce seed was in the vicinity. I have been obliged occasionally to go to great extremes to grow or protect the seed from ravages of these injurious insects. Therefore, when growing lettuce plants, I have found that it paid to make first a flat table similar to a bench in a hot-house, and stand each leg of the table in a receptacle containing oil or water. I have grown plants successfully in this manner when it would have been otherwise impossible to grow them. By using a seed drill and covering every individual seed with soil, I often have managed to get the seed up before any great number were carried off by these insects. They seem to be unable to find or scent them if great care is taken in fining the soil and pressing the seed firmly into it. Of course, great care must be taken not to cover the seed too deep, as lettuce seed will not grow if covered as much as one-fourth of an inch deep; particularly is this true if the season is inclined to be rainy.

I have not found a variety to equal the *Big Boston* for general marketing purposes, as it will produce enormous heads which invariably carry well, and the flavor cannot be surpassed. The rows should be about 18 inches apart. The soil, of course, should

be enriched well, using not less than two tons of fertilizer* for this purpose, one ton of which can be directly broadcasted over the acre and the other added at later applications. The plants should be placed about six or seven inches apart in the row. Thorough cultivation must be given at all times and fertilizer applied weekly as a side application.

Lettuce should not be marketed until the head becomes compact and solid. It is customary to pack two, three and four dozen to the lettuce hamper. Care should be taken, in cutting, to see that the heads are thoroughly dried; they should not be cut in the middle of a warm day, as when the heads become hot they are liable to decay in transit. I have found it best to cut them in the afternoon after the sun is low, packing and shipping them at once.

There is more or less uncertainty connected with the growing of lettuce. It frequently sells as low as $1 per crate in the Northern market, and occasionally brings as much as $6 and $8 per crate there. A great quantity, however, can be grown and sold in our local markets, our hotels using many hundreds of dozen per day on the East Coast of Florida alone. I have found that it pays very well to grow lettuce at 50 cents per dozen F. O. B. Frequently I have received as high as $1.25 per dozen, especially when the crop was destroyed in the more northern lettuce sections of our state by frost or inclement weather.

* *See last part of Chapter VI.*

CHAPTER XXII.

CULTURE OF WATERMELONS AND MUSKMELONS.

HIS is the only climate within the borders of the United States in which watermelons actually can be grown the year around. There is no month in the year that I have not seen them produced. Although they can be planted and grown at any time of the year, as is the case with all other plants and vegetables, there is always a certain or better time in the year when they can be planted to much greater advantage than ordinarily. My experience leads me to believe that January is probably the best month in which to plant them for our large crop.

The varieties that do best here are those of which the seed is grown in the South, the *Florida Favorite* being one of the best. A number of recent introductions are meeting with great favor, and seem particularly adapted to our climate, among them being the *Georgia Rattlesnake* and the *Watson.*

They should be planted ten feet apart each way, slightly deeper than cucumbers. Use the same compost or fertilizer, but put in twice the quantity per hill as prescribed for cucumbers. Thin them out and dust with tobacco. As they have no enemy besides the aphis, it will not be necessary to use any poisonous substance for insecticides.

They should be well fertilized, being careful not to disturb the vines; however, for this reason, it is best to do most of the fertilizing in the early stages of their growth. There is no doubt in my mind but what, in the future, we shall be able to grow great quantities here for the Northern markets, and it would not surprise me in the least to find great quantities of Everglade watermelons on the Christmas markets of the North. They are also

planted here at later dates, in the discarded or cropped vegetable fields, where a remunerative crop is often made as an auxiliary crop, as a sort of side issue. The plan pays very well, since the ground is already fertilized from these previous vegetable crops, and, being free from weeds, very little expense is incurred. They pay as high as $300 per acre, and, if grown early, can be made to pay much more. This latter plan, however, has never been attempted on a large scale. Being a new country, it naturally takes time for our people to develop and branch out in these specialties.

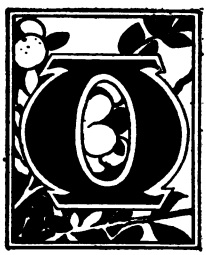
Muskmelons.

Muskmelons are grown very similarly to cucumbers; in fact, identically the same care should be given them throughout. New varieties from the Bahamas, Cuba and California have recently been tried, and seem to adapt themselves much better to our climate than the Northern varieties, which often refuse to fruit in this country.

What has been said in regard to the possibilities for growing watermelons will apply to muskmelons as well, and a great money-making future awaits him who exploits this branch of business advantageously.

CHAPTER XXIII.

CULTURE OF ONIONS.



NIONS are best grown in an old and well cultivated soil. The soil should be plowed deep, well fertilized and allowed to settle thoroughly before planting time. Take care to select a piece of land that is not infested with weed seeds. Onions have no bad enemies except cut-worms, and are generally very easily grown. The variety which thrives best in this country is the *Bermuda,* which is largely grown in similar climates, and has reached such a state of perfection in both quality and flavor that it is grown to the exclusion of all others for early shipment to the Northern states.

For growing in the open field, about three or four pounds per acre of seed is sown. These should be thinned when about three or four inches high and thoroughly cultivated at all times. Cultivation should be shallow, as the roots of an onion do not penetrate to any great depth in the soil. The ground on which they are planted must, of course, be well enriched, and this should be done some time previous to prevent any possible effect from the caustic action in the fertilizer.

Growing onions from sets has frequently been practiced with admirable results. The seed for sets is sown very thickly rather late in the spring and must be allowed to grow somewhat larger than the sets that are usually grown in the North, say three-fourths of an inch in diameter. These sets can be planted in the early Fall, say October, in the open field, which has been specially prepared in the same manner as for seed. Should any of these start to seed they can be bunched and shipped green for shallots in our local markets, they being in great demand through-

out the winter season at our hotels. If good care is given them throughout their growth, applying about 400 pounds of nitrate* of soda per acre, just as they begin to bottom, they will, other conditions being right, make a very remunerative crop, as high as 800 bushels per acre having been grown in this vicinity by those who are conversant with the industry.

* *See last part of Chapter VI.*

MR. WALDIN'S EXHIBIT AT THE DADE COUNTY FAIR.

CHAPTER XXIV.

CULTURE OF OKRA.

REAT quantities of okra are annually grown throughout the United States, particularly in the South. The demand is constantly increasing and each year much larger quantities are consumed, so that it has become a staple article throughout our markets.

There are a number of varieties of recent introduction upon the market, the long green and different varieties of the white having their individual merits.

It can be planted practically every month in the year in this territory, but for the Northern markets it should be sown about August 1. Sow in shallow drills, placing the rows about three and one-half feet apart for the dwarf varieties and five feet for the giant varieties.

Thorough fertilization* should be given, using one of the vegetable fertilizers throughout its growth. Shallow cultivation should be given at all times. Should it be infested with the green aphis, applications of whale oil soap, tobacco dust or tobacco juice, should be applied in time. It is not susceptible to any other disease, except at times, cotton rust. A light application of kainit applied as for the tomatoes, will help to eradicate this latter disease.

It should be picked when the size of a rather small cigar, packed in six-basket carriers and marketed at once. Those that are deformed or overgrown should be excluded from the pack entirely.

A very good price can be obtained for this product. It some times brings as high as $8.00 or $10.00 per crate during the winter months, in the Northern markets.

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* *See last part of Chapter VI.*

One great advantage in growing this vegetable is that it can be grown, as before stated, throughout the entire year, and for the average price obtained will probably exceed $2.00 per crate.

CHAPTER XXV.

CULTURE OF SQUASH AND PUMPKINS.

UITE a number of white squash known as the *Cimmerling* or *Pattipan* variety are grown and marketed from this part of the country. They are in great favor and yield a remunerative crop. Directions given for growing cucumbers should be followed throughout for the growing of squash. However, they should be dusted at least twice a week with tobacco dust to keep off the squash bug or worm, whereas, once a week is sufficient for cucumbers.

Pumpkins will grow with very little care. They seem to adapt themselves to this climate as well or better than any vegetable we grow.

They can virtually be planted and left to take care of themselves. This is particularly true of the variety known as *Indian Pumpkin.* I have planted seeds of these, which took root at intervals along the vines and gradually grew and spread out over as much as one-half an acre of ground, bearing continuously year in and year out. This particular variety known locally as *Indian,* is a very rich pumpkin; in fact, it is a cross between a squash and a pumpkin. The seed cavity is very small, the rind hard, and they will keep in this warm climate several months after being removed from the vine. They make delicious pies and are very fine baked and unsurpassed in flavor.

CHAPTER XXVI.

CULTURE OF SWEET POTATOES.

WEET potatoes are the most popular vegetable produced in the South, being very extensively grown and consumed locally. There are very few truckers or growers who do not plant annually more or less of this vegetable.

A number of different varieties are produced. Some prefer the yellow kind, some the red, and some the white. The yellow variety, however, is the one most in favor in our markets. They have adapted themselves to the different conditions of climate and the soil everywhere. Large crops often follow upon fields where former vegetable crops for the Northern markets have been grown the previous season, land upon which egg plants, peppers, tomatoes, snap beans, cucumbers, etc., have been grown the year previous being particularly well adapted to the growth of sweet potatoes. This soil being highly fertilized and free from weeds, it is only necessary to remove the vines of the preceding crop, plow it into ridges and after the ridges have firmed sufficiently, stick out the potato vines about eighteen inches apart in the row, the rows to be spaced three to four feet apart. The ridges are thrown up from one foot to eighteen inches high. In case the land is new, it is best to mow off the weeds, raking them into small rows, ridging the earth over the same and as this accumulation becomes rotted, it offers plenty of nutriment to the sweet potato and has a tendency to keep the ground loose under the hill, greatly facilitating the crop. Some of the best growers use about 400 to 500 pounds of cotton seed meal in the ridge and add a side application of the same amount after the vines are half grown. This does very well and I would strongly recom-

mend in all cases to at least apply this side application.* It keeps the vines much healthier and stronger and produces finer, smoother and a much greater quantity of potatoes per acre.

There is no doubt in my mind whatever but what in the near future great quantities of this vegetable will be grown for shipping to the Northern markets in midwinter from this territory. At the present day, other vegetables are so largely in demand and their production is followed by such remunerative results, that we have not gotten down to growing these crops which would probably not bring us so much per acre. However, as the sweet potato crop in this vicinity can easily be made to produce 400 or 500 bushels per acre, and as they are usually sold locally for 75 cents per bushel (in fact, they often bring $1.50 per bushel), they pay very well indeed.

They are seldom attacked by insects. I have known of one case, however, in which a field was almost annihilated by an invasion of the army worm. An application of arsenate of lead, however, in this case destroyed these insects entirely. The vines are not usually pulled up or loosened as is done in the Northern country; they are simply allowed to grow until they have matured their potatoes to such a size as the market may demand. Great care should be taken in this country not to let the potatoes grow too large, otherwise they are apt to become old and tough and are frequently bored and bitten into by different kinds of worms. The cut worm and wire worm are very disastrous in this respect.

They can and, without a doubt, will be grown in later years as a cattle food and possibly to manufacture alcohol, for if they be left to grow for a few months after they have matured to marketable size, enormous quantities can be produced per acre. Instances are known where they have been grown to weigh as much as fifty pounds or more to the single potato. These, of course, are unfit for food, being more or less woody and tough and lacking flavor, but as a poultry food they are very fine indeed.

In selecting vines to plant it is a wise precaution to take them from a thrifty bearing field, for if taken from an old worn out patch they have often run out to such an extent as to be almost worthless.

* *See last part of Chapter VI.*

FIELD OF SQUASH, SOUTHERN FLORIDA.

LAKELAND STRAWBERRIES—A MODEL FIELD.

CHAPTER XXVII.

CULTURE OF STRAWBERRIES.

NE of the most fascinating as well as remunerative occupations one can possibly engage in on our richly drained soils of the Everglades is the culture of strawberries. Here they can be grown with great ease at such a time of the year that they will enter the markets without a single competitor in the fresh fruit line.

When one stops to think how many millions of mouths are fed in the United States and that we have here in the South a monopoly of this fruit offered us at a time of the year when absolutely no other kinds of fresh fruits are to be had, the prospect is indeed attractive. There is no doubt but what the great bulk of this luscious fruit can be marketed throughout the North and at very remunerative prices. At present the supply has fallen far short of the demand. It seems that of all fruits grown the strawberry is most universally in demand.

If the market at any time becomes glutted, a drop of a few cents per quart in the price will put the fruit in the hands of thousands who could not afford to invest at the former high price.

In selecting a piece of land for strawberries, extra care should be taken. It should not only be well drained but of such a nature as to dry out readily after a heavy rain. It should be extra well enriched* in advance of planting, for after the plants are set out there is danger of burning them by heavy side dressings of commercial fertilizer.

As to varieties, most any of the popular kinds from the North do well here, the *Brandywine* being one of the best. The *Old Lady Thompson* was in great favor, but has been superseded of late years by the best of the new introductions.

* *See last part of Chapter VI.*

I have known of no large acreages being planted here, but it has been demonstrated that they can be grown to the extent of from 5,000 to 10,000 quarts to the acre. As they will sell readily for $0.35 per quart wholesale during January and early February, it does not take much figuring to see that they are interesting in a financial way.

Plants can be set out during most any month in the entire year. A good way to start in the business is to buy plants in the early Spring from the North, set them out in well fertilized soil, and take good care of them until they begin to run, which they will do a month or six weeks after being set out, provided the plants are good and strong to start with. If great care is taken to properly place layers on moist soil, a great number of plants can be grown. In fact, plants enough to plant several acres have been grown from a single thousand. Before the rainy season closes, say in September, these young runner plants can be transplanted to the permanent field. They should be set about eight inches apart in the row and the rows planted eighteen inches apart. Another way is to set the plants about ten inches apart and place two rows together, a foot apart, leaving alternate spaces eighteen inches. This is a somewhat more intensive plan, but admits of mulching two rows at one time and helps to protect them from drifting rains which are apt to throw sand upon the fruit. As before stated, the ground should be thoroughly enriched some weeks before planting. The foliage and roots are very susceptible to strong fertilizer, especially those containing considerable potash. As quickly as they have taken root they should be worked very slightly on the surface. All weeds should be cut down and light applications of fertilizer* added semi-weekly. As soon as they begin to bloom, which will be about December 1st, a mulching of rotten grass or hay should be applied around and under the plants. Should the land be inclined to be dry, a thorough system of irrigation must be supplied as they are very susceptible to drouths; in fact, a crop will almost be annihilated should there be a lack of proper moisture.

* *See last part of Chapter VI.*

The fruit is picked for shipment as soon as it shows color. It should be very carefully assorted, any small, inferior or bruised fruit, or such as has been damaged by insects, not being allowed to go into the baskets. The baskets should be nicely top dressed, laying the fruit uniformly and placing the stem ends all in one direction.

For the home market they may be allowed to ripen up over the entire surface. They are usually marketed in the ordinary quart baskets and for shipment are placed in refrigerator boxes or cars.

In case grasshoppers or crickets, cut worms or any other insects should bother the plants, light sprinklings of paris green and bran, as prescribed for tomatoes, should be applied.

CHAPTER XXVIII.

CULTURE OF BANANAS.

HERE is no doubt whatever in my mind but what in the near future great quantities of bananas will be grown in this extreme southern end of Florida. The rich black muck lands of the Everglades afford a particularly inviting field for this industry, and it is a practical certainty that they will be grown here successfully in the next few years and with much profit.

I have found that the *dwarf varieties* are best adapted for this climate. The reason for this is that they are not only more productive but have much stouter stems and resist storms much better. I have found all of the dwarf varieties equally good, there being very little difference in their quality. They should be grown on rich, alluvial soil, well drained at all times, and should be planted at a distance of ten feet apart each way. I do not think we have a plant in this region that responds as readily to cultivation as the banana. It seems that after each and every thorough cultivation, a new growth is made. Great care must be taken at all times to properly thin the hills, keeping them down to three or four stalks, endeavoring to have one bunch of fruit in development only and cutting out all suckers except two or three. Should you at any time neglect this, you will find your banana field becoming an impassable thicket, in consequence of which inferior bunches are produced, and eventually the entire field will go back and become unproductive and an undesirable eyesore.

Planting at this distance apart, about 400 hills can be produced per acre, allowing a little space for roads through the field which are necessary for the removal of the bulky crop. They should not be picked in this country until the first few ripe fruits

show. These are greatly superior to the half-grown green picked article usually imported from other tropical countries. If well grown, they will readily sell for two or three cents per pound in the wholesale markets. If well taken care of, as far as cultivation is concerned, with three or four applications each year of fertilizer,* say 800 pounds per application, they should produce not less than 1,200 bunches per acre, weighing from forty to sixty pounds or more per bunch.

The quantity of bananas consumed throughout the United States is something enormous, being the only fruit that is fresh on the market the year around. I have found upon inquiry that an average of twenty-seven carloads of bananas are consumed per day in the city of Chicago and suburbs alone.

The quality of our southern Florida banana should in a short time become known throughout the country, for if they are picked after they have begun to show color, the flavor will be greatly superior to the foreign article. Aside from the price obtained from the fruit, a great many slips or suckers can often be sold for remunerative prices, forming an additional revenue.

As they are of very rank growth, they should be kept well irrigated; in fact, the best bananas are grown upon such soils as are located only slightly above the general water level, the roots having at all times easy access to the moisture.

There are other great possibilities in connection with banana culture, as the stems of the plant have a very tough fiber and my impression is that a very good quality of hemp could be derived therefrom.

A variety locally known as the *horse* banana is used throughout the South and is much relished. It is fried and served as banana fritters and is certainly much superior to fried potatoes.

* *See last part of Chapter VI.*

PAW-PAW TREE ON MR. WALDIN'S FARM.

CHAPTER XXIX.

CULTURE OF PAW PAWS.

HE ripe fruit of this tree eaten for dessert with cream and sugar is not only a delicious dish but takes upon itself the responsibility of the digestion of the preceding meal. It is said that the papaya (paw paw) fruit can be eaten every day for two years without any ill effects. One or two experiments in cooking the ripe or unripe fruit with tough meat will soon convince anyone that with the aid of the paw paw the toughest meat may be made as soft and tender as you please.

The paw paw is really a large herb and hence should be grown from seed in the same way as the tomato or melon. Professor P. J. Webster of the United States Sub-tropical Laboratory at Miami states that less than one per cent of a batch of Florida seedlings bear superior fruit and this accounts for the scarcity of the paw paw on the market. There are great numbers of this fruit growing wild throughout the South Florida jungles and hammocks. They are cross-fertilized by the numerous insects and moths. Such cross-fertilization can be avoided by obtaining good varieties of paw paws from tropical localities where they come true from seed, and pollinating one or two flowers by hand, carefully tying them up in paper bags to keep insects from further pollinating them. By this method there is no doubt but what improved strains can be grown. The paw paw, like the willow and the date palm, has two kinds of trees, the barren which bears the staminate flowers, and the fruiting tree which has the pistillate flowers. Rather frequently the former may bear bisexual flowers at the ends of its long flower stalks, which flowers turn into rather small fruits. More rarely the pistillate tree may have some perfect flowers, provided with stamens.

All parts of the paw paw tree, except the perfectly ripe fruits, contain a milk white latex, which exudes from the slightest wound, flowing rapidly at first and then slackening, probably because it coagulates in the latex tubes. The latex soon clots and dries on the plant and so tends to seal up any wound. It has a corrosive action upon the skin, and if the raw latex from green fruits, etc., is swallowed, it may tend to cause intestinal inflammation. The raw latex has an extremely potent digestive action upon proteids. Thus if a slice of tough meat, as a beef steak, which in the tropics may be cooked and eaten an hour or two after being killed, is well rubbed with the juice of the paw paw leaves or the green fruits, or even the pulp of the ripe fruit, and cooked, it becomes tender and is readily masticated. The ripe fruit, which does not contain the visible milky latex, acts in the same way on proteids.

When perfectly ripe the fruit of the paw paw is quite soft, but has lost all acridity and the milky juice has disappeared. There is no doubt whatever that this dessert fruit eaten after a good dinner greatly aids the digestive process. It also, like the fig, acts as a gentle laxative.

The paw paw requires a well drained soil and is readily killed by stagnant water about the roots. Thus it grows commonly in South Florida wild, in high hammocks and shell mounds. If grown on rather poor sandy soil, it should be enriched with plenty of humus. If only a few plants are grown, as for home consumption, the following method has been tried in a light volcanic soil in the West Indies, securing excellent results: Dig holes about ten feet apart, in well drained soil, two or three feet deep and three or four feet square, fill them with a compost of soil, farmyard manure, rotting weeds, or humus of any kind, adding unleached wood ashes. Plant several paw paws in each of these holes and cover with any good mulch. Of course the young plants will need water. As soon as the first blossoms appear, cut out the staminate ones so as to leave only fruiting trees. For this purpose several plants should always be planted in a hill. A few paw paws may be planted near by on poor ground and

one or two staminate trees out of these left to pollinate the others. In very dry weather the plants should be irrigated, for while they will grow in well drained soil they, at all times, should be well supplied with water. If they are well grown without a check, producing large leaved healthy plants, they will in this warm climate fruit almost continuously. I have known cases of paw paws reaching an age of several years; the best fruits, howover, are produced on the young trees, say one year old. Heavy crops can be grown on well drained Everglade soil and no doubt this fruit on account of its medicinal qualities will steadily grow in demand. Should insects bother the immature fruits they can be annihilated by applications of tobacco dust.

BANANA PLANTS, MR. WALDIN'S FARM.

PINEAPPLE FIELD, SOUTHERN FLORIDA.

CHAPTER XXX.

CULTURE OF PINEAPPLES.

ATIVES of cold countries and those living for many years in the continuous heat of summer between the tropics, are apt to suffer sometimes from digestive derangements. Nature has planted the remedy in the shape of various fruits, such as the pineapple as well as the melon paw paw. For instance, an authority notes: "You can sup on many kinds of indigestible food and sleep the sleep of the just and put all nightmares to flight if you who partake will assimilate a little pineapple or eat a melon paw paw, as he prefers, before retiring. Of course, it will not neutralize acute indigestion but will prevent it, and as stated, is a Godsend to him who dissipates."

Pineapples are generally grown upon a soil which one who is accustomed to grow plants of any variety would be apt to call sterile or worthless. The simple fact that they will grow upon this kind of soil, in spite of its sterility, does not prove by any means that they prefer that class of soil. I have found in my past experience that the pineapple will produce much better upon a soil which, while light and porous, is at the same time rich in such fertilizers as are essential for all crops. Choose such a piece of land as is naturally well drained. It is not necessary for it to be sand or even half sand, but better still a soil that contains a considerable amount of decayed vegetable mold or humus.

Plant in patches (according to variety) from six to ten rows wide. The larger growing varieties, such as the *Smooth Cayenne* and *Porto Rico,* thrive much better if planted in wide rows, the beds being put some distance farther apart. Rows eighteen inches apart are considered about right for *Red Spanish,* twenty to

twenty-four inches, and even farther for *Smooth Cayenne* and *Porto Rico*. They should be planted preferably in the month of August; and by all means, if suckers are procurable, they should be given preference. After first cleaning off the surface leaves from the stem end, they may be laid aside for a few days in a shady place to start their roots, which they will do in the course of a week or ten days in this humid climate, and at this season of the year.

In the meantime the beds should be carefully prepared by digging out all stones, sticks and trash of any kind. Rake to a smooth even surface, elevating the center of each bed slightly to facilitate the removal of surface water. Marks should then be struck out the desired distance apart; mark the other way in squares. A depression is then made with a pole or stick of suitable size corresponding in diameter with the butts of the pineapple slips and the plants firmly pressed into the soil. Care must be taken not to press them in too deep but just so they will stand upright firmly without toppling over. If the soil is sandy, there will be danger of their being washed in the crowns by heavy rains, and it is necessary, therefore, to drop a small amount of cotton seed meal or ground castor pomace in the hearts. Thus if sand should accumulate in the hearts, the castor pomace or cotton seed meal unites with it and makes a sticky mass, which will adhere to the leaves and will be removed by the growth of the plant as they grow from the center; the plant will thus clean itself.

Another excellent method with which I have had splendid results is mulching the field thoroughly with any kind of grass, such as glade hay or weeds, from nearby fields. This is first spread over the entire surface of the field to a uniform depth of two or three inches and the plants are planted in this mass at regular distances apart as before stated. By following this method no trouble whatever will be had later with grass or weeds as this mulching will effectually smother out all such growth and will supply the pineapple plants for a number of years with decayed

humus and fertility, which is very essential to their growth and development.

Our best growers usually fertilize four or six times a year, taking extra precaution to use no phosphate containing acid. Bone meal in its different forms is used for this purpose exclusively. At the same time no muriate of potash should be used as the salt in it is very injurious to the pineapple. A good mixture is one containing raw ground bone, cotton seed meal or castor pomace, relying upon the bone meal for phosphoric acid and the sulphate of potash for potash content. If not grown by the mulch method, it will be necessary to use the scuffle hoe frequently as all weeds and grass should be destroyed before they get large enough to injure the plants or crowd them in any way. In fact, here, as in all other cases, destroying the weeds before they get a chance to show any considerable growth is preferable to attempting their destruction after they have become established.

If good stout suckers are used and carefully planted as outlined above, fully 75 per cent and sometimes as high as 95 per cent will produce fruit inside of the next twelve months. I have carried on in an experimental way small plantations of pineapples on Everglade land, having planted them by the mulch method, and out of 108 suckers planted had 96 apples averaging over four pounds each within thirteen months of planting. This variety was the *Smooth Cayenne,* which is considered a winter bearer and for this reason is often very profitable. However, fruit of this particular kind should be picked in rather a green state, as it is so heavy and juicy that it is liable to bruise and leak if picked when showing the least bit of color.

The crop should not be picked until thoroughly filled; the fruit is known to be ready to pick when the eyes are plump and when the skin begins to color. Some of our growers here are shortsighted and frequently pick the pineapples before they are thoroughly filled, and for this reason great injury is done annually. The importance of marketing nothing but nice plump juicy fruit cannot be overestimated; partially ripe pineapples are liable to wither and dry out, and this has a detrimental effect

upon the market. Should a novice chance to buy one of these withered pineapples he can hardly be induced to buy the second time. If, on the other hand, he should happen to procure a fine juicy fruit, he will ever after be a customer for this product.

The variety mostly grown for market is the *Red Spanish* as it will stand shipment best. But a few of the finer varieties, such as the *Abacca, Porto Rico* or *Smooth Cayenne,* should always be grown for home use, for while they are too soft for shipment they are of much superior flavor.

CHAPTER XXXI.

CULTURE OF JAMAICA SORREL.

AMAICA SORREL, better described as the *Southern Cranberry,* is very easily grown in the South. It is best planted in February or March. The seed should be placed in well prepared ground, preferably in hills about two feet apart. The rows should be placed about three to four feet apart.

Shallow culture should be given at all times with an abundance of fertilizer.* As this plant is very subject to root knot, precaution should be taken not to place it in such localities as are apt to be infested.

It is also subject to mildew, but this can be prevented by dusting with sulphur.

Heavy crops of this succulent novelty can be grown and profitably marketed throughout the South during the entire Fall and Winter months.

The sprouts and calixes should be gathered when tender and before they have reached a mature age. They are usually marketed in six-basket carriers. The profits vary largely with the market, but $1.50 is the standard price per crate.

* *See last part of Chapter VI.*

MR. WALDIN AND HIS FAMILY.

YOUNG GRAPEFRUIT TREE ON THE WALDIN FARM.

CHAPTER XXXII.

CULTURE OF FORAGE PLANTS.

THE industry of growing forage plants, either for feed or soiling purposes, is still in its infancy in this part of the South. However, demonstrations have been carried on to such an extent that we already have a large number of plants suitable for both feeding animals and enriching the soil.

The plant that is probably the most easily grown and which I would highly recommend to the amateur grower is the velvet bean. It stands foremost in this respect, the only drawback being that it is hard to save and cure properly for forage purposes.

Considerable has been written about this crop. Some find much difficulty in making hay of it and are, therefore, ready to condemn it at once. In my past experience, however, I have found it an excellent, nutritious feed, comparing favorably with alfalfa and clover hay. Of course, in our humid climate, it must be cured with great care. It must not be cut when the dew is on it, and it must be raked in shallow windrows or piles at once, allowing it to cure in this shape. I have frequently raked it directly (not even cutting it) with a steel sulky rake, tearing the roots from the ground, and have found this practice a splendid one. It must be left to cure for several days after raking, according to the atmospheric conditions, after which it must be turned; a great deal of labor can be saved by tearing the bunches apart with a sulky rake, for if put in large heaps the long tendrils are apt to hold the heaps together and make it practically impossible to handle it or fork it thereafter. It must be thoroughly cured before putting into hay mows or stacks. This does not alone pertain to the leaves or foliage but to the vines themselves.

It is so nutritious that although it should turn black from frequent heavy dews or light rains it is still well worth while to preserve it for feed, as it can be fed during the season of the year when animals are not hard at work. Fed green to cows, it is a most extraordinarily nutritious feed, producing milk unsurpassed in richness. It is also the very best of green poultry feeds, poultry preferring it to any other green feed—they even eat the ends of the green tendrils or vines. Horses must be fed very sparingly of it, as it will cause them to bloat readily.

The hay should be salted before curing and putting in mows, as it is then much more relished by all animals. It is much to be preferred to cow peas from one point of view, as it is not subject to root knot. I have frequently experienced considerable trouble from this source.

Cow peas can be sown broadcast as light as three pecks to the acre with splendid results. They are usually planted in rows, very much as described in chapter on string beans. The hay should be cured in the same manner as velvet beans but it does not require as much attention, as this crop per acre is much lighter in bulk.

Velvet beans are usually sown in rows about ten feet apart. I have found, however, that they cover the ground much more quickly if the rows are sown one-half this distance, using for this purpose a much heavier seeding, sowing one or one and one-half bushels of velvet bean seed to the acre.

Of the different kinds of cow peas, we place *first* the *Iron* variety as much to be preferred. A pure strain of these, if carefully saved, are less apt to produce root knot. In my experience, however, I have found them subject to this disease, particularly if planted on land which is already infested with the injurious nematode.

Among the native Florida grasses suitable for forage the beggar-weed stands foremost. This, if cut at an early stage before the seed is developed, will sprout up repeatedly from the root and several crops can be cut, similar to alfalfa. I consider the hay of beggar-weed in no way inferior to the latter. It must

be sown on well prepared soil at the rate of fifteen to twenty pounds per acre.

Different varieties of millet and Kaffir corn are also easily grown and if carefully cured make very good feed indeed. It is best in this humid climate, however, to feed all hay within a few months after it has been stacked away, as there is much more danger of hay becoming musty here than in the more northern and temperate countries.

I find for soiling, the velvet bean is probably one which will add the greatest amount of nutritive matter to the soil. It is more free from diseases and more rank in growth than any of the other plants before named. Before plowing the velvet beans under, should it be desirable to use the land shortly thereafter, it is best to cross cut the entire field with a sharp disc harrow, leaving them to cure for a few days in this stage, and then plow the entire mass under with a turn plow. However, should it not be desirable to farm the land for some four or six weeks thereafter, they can if first planked down thoroughly to the ground, be plowed under directly without the process of discing, using a heavy coulter on the plow for this purpose.

It is claimed in the northern countries that leguminous plants will add from $4.00 to $10.00 in ammoniates to each acre of soil, but I am under the impression, as our fertilizers are valued much higher in this territory, that we receive twice this amount, with even better results from the velvet bean.

Another fact that must not be lost sight of in this connection is that these leguminous crops benefit the soil directly by shading it during the protracted summer months, thus having a tendency to add to the soil a value which cannot be computed by a chemist's analysis.

Para grass will produce great quantities of forage here also and makes excellent hay.

A number of our northern weed seeds seem to have acclimated themselves to this country and may be used with great profit for soiling purposes also. Among the latter are the *Spanish Needle, Rag Weed,* and various other weeds.

It is possible that we may be able to acclimate some of the clovers and alfalfa. Various favorable reports have been made upon these useful leguminous plants. In all cases, it is best to have the field thoroughly drained before attempting to grow them, since they do not thrive in a sour or stagnant soil. In seeding clover or beggar weed, great care must be exercised not to get the seed too deep in the ground. Neither should the seed be sown when the surface soil is exceptionally dry, because under such conditions the sun's rays are apt to penetrate and destroy the vitality of the seed before it has a chance to sprout. A very good way is to first thoroughly prepare the field and then sow the seed directly after a heavy rain.

Often much can be gained by sowing these seeds directly between the rows of vegetables at their last working. The land at that time is free of weeds and the growth of the young plants is not apt to interfere with the vegetables before they can be harvested. By this method, considerable labor can be saved.

Should it be desired to save seed of any kind, great care must be taken to choose a dry time of the season to pick and cure them in, as otherwise the vitality will be impaired. Velvet beans are best if picked right from the field and cured in an airy, shady packing house. Should they be infested with weevil, as they are liable to be, the seed, directly after being threshed out, should be placed in a tight receptacle and treated with bi-sulphite of carbon, placing about a gill in a shallow dish in the top of the barrel or receptacle in which the seeds are deposited, covering it over tightly with newspapers and other covers to exclude the air. Precaution should be taken not to expose the fumes of this dangerous explosive to the open fire as there is danger of its igniting. Seed thus treated may be kept for the following season. In fact, all seed should be sown only in the season following the one in which they are grown, as the humid atmosphere here has a tendency to destroy their vitality in a very short time.

CLUSTER OF GRAPEFRUIT.

CHAPTER XXXIII.

INSECTS AND FUNGI.

S WE have no freezes to help destroy insects, we no doubt have a greater number to contend with than our Northern growers. We have little trouble with them during our rainy season, but on the other hand, we are invariably pestered with them in a protracted drouth, thus showing that wet as well as cold weather is detrimental to them.

It seems a fact that fungi and insects of all kinds adapt themselves to the particular crops grown, and no sooner is a certain crop produced successfully a number of years in succession in any locality, until injurious fungi and insects appear, at first in a scattering way, but soon making themselves conspicuous by their number and the consequential damage done; thus the tobacco worm, the tomato worm, the boll weevil and other kindred insects and fungi grow abundantly, and are each known in the country where these certain crops are largely grown. Their stealthy approach generally finds the unsuspecting and otherwise busy farmer unprepared to meet their onslaught. In fact, even after the grower has, by years of experience, become thoroughly acquainted with their injurious habits, they still come almost every season as more or less of a surprise. It is nothing uncommon, therefore, for him to awake some fine morning and find his thrifty beautiful crops already partly devoured by these destructive vermin, and I will venture to say that not a single season has passed by but what dozens of growers are in this way discouragingly surprised and disappointed.

As in most cases of this kind, prevention is always to be preferred to an actual remedy. It thus behooves the grower to keep a sharp lookout, thereby endeavoring to anticipate these

unwelcome guests. This is best done by applying substances known to be nauseous to them, by disguising the scent or smell of the young plants, using harmless non-poisonous substances such as powdered sulphur, or finely ground tobacco dust, etc. I prefer to use in addition a combination of fungicides with poisons added (such as Dry Bordeaux Mixture with Paris Green) thereby being enabled to both prevent and annihilate insects and fungi with the same applications. We have found in a practice of many years, that the different forms of Bordeaux Mixture, both wet and dry, are preferable for this purpose to any other remedy exploited at the present day. By the addition of Paris Green to this mixture, we obtain an insecticide and fungicide, which, besides having the virtue of destroying both of these enemies, seems to have the faculty of stimulating certain varieties of plants. Whether this is purely imaginary, probably caused by the dark, rich appearance produced by heavy applications of this fungicide, or if it really has this stimulating effect, I am not entirely clear. This I know, however, that such plants as tomatoes, egg plants, peppers, or Irish potatoes, which have been regularly treated to applications of this Bordeaux and Paris Green treatment, invariably have an appearance indicating thrift and rapid growth.

Next in importance is a fungicide I would name Flowers of Sulphur. This, when applied in the early stages of plant growth, seems to give almost as beneficial results as Bordeaux Mixture. Paris Green can also be mixed with this, and if it is first adulterated, to the extent of about one-half, with air-slacked lime (the lime having the effect in this case of neutralizing the otherwise caustic action of the Paris Green) it answers almost as well as Bordeaux Mixture and is much cheaper.

Foremost among useful poisonous insecticides stands arsenate of lead. This form of arsenic will not dissolve in water and therefore has no caustic action upon foliage. This insecticide if properly prepared can be used upon any foliage without injurious effects whatever. It mixes very readily with water and is held in suspension for a considerable length of time. It will

probably come to more general use as we become better acquainted with its beneficial results.

As a spray for sucking insects, like the green aphis, for example, which often does very serious damage in our fields of cucumbers and egg plants, I have found nothing better than a solution of whale oil soap. It has the power of not only destroying these insects together with their eggs, but the disagreeable fishy smell seems to drive away the adult insects and keeps them from depositing their eggs for some length of time after an application.

Great care must be taken always in applying these remedies to make sure that the caustic effect will not burn the foliage. Before applying insecticides it is best to first make individual tests upon each crop, for a crop that is growing luxuriantly is much more easily damaged by such strong applications than one which has its foliage hardened through drouth or other detrimental conditions.

As before mentioned, it is much better to combat both fungi and insects by anticipating or preventing their appearance, for after they have once gained a strong foothold it is a difficult matter to exterminate them. "An ounce of prevention is worth a pound of cure."

In view of the fact that so many of the insecticides and fungicides are either fraudulently combined and are extremely expensive considering the value of the ingredients employed, it would be well for the public to be very sure of the composition and value of any such compound before purchasing it in quantities, and for this reason I would advise the grower to obtain samples and send them on to the State Chemist at Tallahassee for analysis.

In many cases a great deal can be found out by consulting bulletins from Experimental Stations dealing with this subject. It is to supply this want that the Bureau of Chemistry has issued bulletins which are a preliminary report to a bulletin more technical in character, which can also be gotten from the Agricultural Department at Washington and which should be in the possession of all contemplating truck farming in this country.

We seldom find a luxuriant thrifty field damaged by insects, but on the other hand they seem to delight in damaging a field which is hampered in growth in any way. Thus, vegetables are frequently attacked by mildew in extremely dry weather, and disastrous conditions are more frequently met with when the soil is in want of moisture or the foliage has not been washed sufficiently by rains heavy enough to benefit the crop. Thus light rains are of little or no benefit and heavy fogs and dews during drouths (this happens quite often early in the mornings in Florida) encourage mildew as well as injurious insects when the soil is very dry and the plants are in an unthrifty condition generally. Early applications of sulphur are probably the remedy of greatest benefit here. I have found heavy applications of sulphur beneficial under these conditions even after the mildew had advanced considerably.

You will find that the successful trucker who has his crops well in hand as regards culture, irrigation, etc., is troubled but little with insects or fungi; a healthy plant seems to have the same immunity from disease that healthy humans or animals have.

By the scientific breeding and selection of plants much has also been done. Occasionally healthy plants are found in diseased fields and by carefully saving the seeds therefrom valuable acquisitions are added to our lists.

Sulphur, if applied when plants are young, will prevent tomato rust and the spotting of egg plants and peppers. Should a field be known to be particularly subject to these diseases, kainit should be harrowed in at the rate of 600 pounds per acre, as described in notes on fertilizing. This seems to destroy injurious germs and at the same time supplies abundant potash.

Isolating a field is often practiced with good results, as such a field will often mature an entire crop before it is found by a sufficient number of insects to do material damage.

I have found one of the best remedies for the extermination of cut and other worms to be frequent applications of poisoned bran made by thorough mixing (while dry) one pound of Paris Green with 50 to 100 pounds of wheat bran, moistening afterwards just enough so it will stick together. This can be applied

around the roots of small plants, or a tablespoonful scattered under and around a larger plant.

We once had a field so badly infested with cut worms that out of a thousand plants set out in the evening, scarcely a hundred remained unharmed in the morning. We at once applied poisoned bran broadcast, sowing it like oats, and when setting out two days afterwards found scarcely a plant touched. The satisfaction gotten from this test was probably worth as much as the crop to us. Great care must, of course, be exercised not to drop any large lumps of bran, otherwise fowls or animals may be able to partake of enough to destroy them.

When planting cabbage, cauliflower and egg plants in the early Fall it sometimes happens that they are infested by a small greenish or yellowish worm; this worm can best be destroyed by applying a pinch of fresh strong pyrethrum directly to the tender heart of the plant. I have never found them troubled much after the plants are half matured.

MAKING AN ORCHARD PAY FOR ITSELF BY PLANTING VEGETABLES BETWEEN THE TREE ROWS.

SUMMER FORAGE CROP IN YOUNG EVERGLADE GRAPEFRUIT ORCHARD.

CHAPTER XXXIV.

TREE GROWING IN CONNECTION WITH TRUCKING.

FAR-SIGHTED grower invariably looks forward far enough to see that the most important adjunct to trucking is to produce a crop of useful trees in connection with his vegetable industry. In fact, all varieties of useful trees, particularly the citrus variety, thrive best on a thoroughly cultivated and fertile soil, which has been carefully drained and irrigated.

For best results the land should be plowed in widths corresponding to the distance apart that the trees are to be planted. I find in heavier soils that thirty or thirty-five feet is none too far apart to have the rows of citrus trees; this pertains particularly to grape fruit. I have known of grape fruit trees which produced a diameter of top thirty feet across when they were ten years old. It is preferable to plow lands for trees twice in the same direction, plowing the lands toward the centers each time and planting the trees upon the apex, leaving the furrows to connect with lateral and sublateral ditches for drainage.

For the first two years the trucking industry can be carried on among these trees indiscriminately, planting such varieties of vegetables upon which it is necessary to use fertilizer of a highly nitrogenous* nature, as tomatoes, Irish potatoes, peppers or egg plant. It is best, however, to be more careful in regard to heavy applications of vegetable fertilizer after the second year, as the disease known as "Die Back" (due to overfertilization) is apt to gain a foothold. I have found that fine crops of beans can be grown between the tree rows, without detriment to the trees, the third and fourth year by applying only such fertilizers as are locally known as fruit and vine fertilizers, or in other words,

* *See last part of Chapter VI.*

containing a low per cent of ammonia,* probably 2½ per cent or 3 per cent, and increasing the potash and phosphate proportionately.

It is also advisable to keep away from the trunks of the trees several feet the third year with this fertilizer, and increase the distance each year, corresponding with the development of the growth of the trees. On the other hand, such trees as pecans and tropical fruit trees can be grown for as much as six or seven years under heavy applications of ordinary vegetable fertilizer without detrimental results. In fact, my experience has prompted me to believe that these heavy applications are beneficial to any of the above trees throughout the first six or seven years of their growth.

Much has been written about the influence of the stock upon the scion, but in no variety of fruits is it so marked as in the citrus family. That the soil has considerable to do with this can hardly be questioned, as trees that produce satisfactorily upon certain stocks in one section of Florida are an absolute failure in other localities of the State. For instance, most of the growers in Central Florida have used the trifoliata stock with success, but it certainly has proven an absolute failure in the southern part of the State. Because of the failure of this stock to produce here, it was at one time considered impossible to grow oranges and grape fruit in extreme Southern Florida, but just at this critical time the sour or rough lemon stock showed its adaptability here and successful crops are now grown upon it.

One serious fault they have, however, is that this fruit goes dry or pithy too early in the Spring, and another is that a sort of second growth is produced in the fruit when the sap starts in February which has a tendency to thicken the skin, and for these reasons hurts its marketing quality and even makes it unsalable. To produce a fruit *par excellence,* one having the finest quality and flavor and one that will retain its weight throughout the summer, a *sour orange stock* should be used to bud on. As this stock will not thrive on ordinary thin or poor pine land (sand), it cannot be recommended for this soil, but it is pre-eminently adapted

* *See last part of Chapter VI.*

to the rich soil of the Everglades where it will grow and thrive as it does naturally along the margins of the hammocks. Being immune to the disease known as "foot-rot" further commends it for Everglade planting.

Other varieties of trees should be grown as wind breaks around the edges of each separate field. I find that bamboos, cocoanut trees and the eucalyptus respond very well in the Everglades proper. These should be planted rather thickly in a belt encircling, if possible, each ten acre plantation. Bamboos are very valuable in this respect, as they not only offer great resistance to the wind but produce a great number of stakes which can in future years be used as braces to hold up the enormous crops of grape fruit and oranges, etc. There will also be a market for this useful wood in time. At present a great quantity of it is imported annually from foreign countries, particularly China, it being in strong demand for baskets, ornamental work, furniture, window shades, porch screens, etc.

CHAPTER XXXV.

NOTES ON FROST.

LTHOUGH this part of the South is generally termed a frost-proof section, this claim does not apply to tender vegetables. Citrus and tropical fruits, however, are practically immune to such light frosts as we have.

The truth is good enough and we need not try to impress anyone with anything but the facts as they exist here to induce immigration. From the middle of December until the middle of March we are in more or less danger of light frosts for short intervals. These frosts extend well to the south end of this peninsula.

As to the conditions which produce damaging frosts, they are as numerous as the kind of crops raised and vary with local topography and proximity to bodies of timber or water. Soil conditions have also considerable to do with their severity. The temperature of the air, in some instances many feet above the earth, and the presence of clouds are other important controlling factors also having effect. Calm or comparatively still air is a condition which favors the formation of frost. On windy nights, the air is not permitted to arrange itself in layers according to its density. Ordinarily the densest and coldest air is near the surface of the earth, but if it is at all windy it is kept stirred up or mixed by the wind and is not allowed to settle and do injury to tender vegetation.

The prospective grower has, therefore, a great many different conditions to take into consideration. For instance, a body of land that lies south and east of a body of water will almost certainly have ample protection from frost. Soil conditions also often have the effect of driving away a frost as well as bringing about such conditions as will have a tendency to draw frost.

Thus it has been proven that land that is not well drained is much more subject to severe frosts than land which is thoroughly drained. Again, a thorough irrigation just before a frost has been found to drive it away, probably by reason of the greater radiation taking place from the earth's pores.

Interesting experiments have been made by the United States Government in the cranberry region, and it has been found that thorough under drainage of the land has had the effect of raising the temperature from four to eight degrees. It has also been noted in these regions that large areas of certain well-drained fields were unhurt, while other fields lying adjacent, but not drained, suffered serious injury. Thus we may expect more damage from frost to those fields that are not properly drained.

Again, when fields are thoroughly drained, nitrification sets in and heat is at once produced, thus having a tendency by generating warmth and with the aeration derived therefrom of driving the frost upwards, showing that underground drainage has an additional beneficial effect in furthering this decomposing or nitrogenous action in the soil.

Large applications of nitrogenous substances, such as are contained in compost or humus, also have a desirable effect. One fact that must not be lost sight of in this connection is that while these frosts are generally looked upon as disastrous to the country in general, they have a beneficial effect in this way: If it should destroy some of the fields in any locality, it will enhance the market value of all products in fields remaining unhurt. The profits in my experience have often doubled and trebled under these conditions. I have experienced times when I was under the impression that I had lost as much as 75 per cent of my crop when really the gain on the remainder was such that it had really increased the value of my entire output—or what would have been formerly my entire output—by 100 per cent or more. Hence, I would advise everyone who is confronted by this dilemma to first make sure that it is not visionary and apply himself closely to the remnants of his crop, giving it the best of culture and supplying other conditions conducive to its growth, thereby in a large measure making up in value and often really increasing

his income from what seemingly would have been a loss. Another beneficial effect of frost is that in this tropical climate nearly all insects are at once destroyed for the time being and such crops as are greatly hampered by them can be grown without experiencing any trouble from this source for some months to follow. One can always rest assured that when frost touches this section it has wiped out everything north of here and that the market on all perishables will advance strongly in consequence.

Inasmuch as frost in this territory is infrequent and light, it often happens that only the foliage of tender growth is damaged. In this case liberal applications of nitrate of soda will often have the effect of restoring this foliage in a comparatively short time, thereby bringing the plants, if otherwise thrifty and healthy, back to their original state of vigor in a very short time.

I can here relate from my own experience an instance wherein I had several acres of beans badly scorched by an unexpected frost—in fact, there were large parts of the field that seemed entirely destroyed. The sun had hardly risen until I was on my way to our nearest fertilizer dealer, from whom I at once bought all the nitrate of soda at hand and before night of the same day had made liberal applications to the entire field. Before ten days had elasped I had the original foliage of this crop restored and the profits in this case were as high as $2,000 per acre. We at this same time saw numerous instances in which this same remedy could have been applied in the neighborhood, but where, through want of care or knowledge, mildew and other diseases quickly ruined the crops.

For further protection, the grower must depend upon artificial appliances. These appliances are designed to produce the following effects or results:

To prevent a rapid radiation of heat from the earth.

To artificially charge the air with moisture by applying a light spray to the cold air.

To create artificial drafts whereby the warmer air is mixed and the cold air is not allowed to settle to the surface of the earth.

To actually cover or roof the plants.

Of course, the latter is found impracticable on large areas, but can be taken advantage of in cases of valuable seed beds.

Devices designed to prevent rapid radiation of heat from the earth include screens which can be drawn over the plants. These devices are of a necessity limited to very small areas on account of the great expense incurred.

Probably the great remedy of the future will be to build smudge fires of any material which will create considerable smoke. For this purpose litter of any variety can be used. However, it is impossible in many cases to get enough of this material to continue a smudge for any great length of time and for this reason piles of logs or stumps can be collected from clearings of land and can be stored to great advantage. Tar has been used for this purpose with beneficial results. Of late we are offered a variety of smudge pots, using as fuel crude petroleum, which is supplied from storage tanks or wagons driven through the fields. These have been largely used in the peach and apple belts of the north. A number of them are placed upon the market in this country and so far results have been very gratifying.

We may possibly be able to utilize briquettes made of peat, and I am under the impression that if these were thoroughly dried and saturated with crude petroleum they could be stored for future use on the edges of the fields, and if they were burned in an oven or sheet iron stove they would no doubt last for a great length of time and give correspondingly good results.

Where an overhead spray is available frost cannot do damage and a number of fields have already been protected in this way.

In the Everglades sub-lateral ditches can be filled with water by pumps of large capacity, and if this water is allowed to flow slowly through the ditches it will thoroughly protect a field from frost.

MOONLIGHT ON BEAUTIFUL BAY BISCAYNE, MIAMI.

CHAPTER XXXVI.

BIRDS.

IRDS play a very important part in the economy of Nature, and by their destruction of insects lend material aid to the farmer and horticulturist. We are greatly indebted to birds for the extermination not alone of insects, but also for the destruction of numerous weed seeds. Everything should be done, therefore, to encourage birds to nest and stay near our vegetable gardens.

In former years in the northern and central States, in which I have had considerable experience in truck gardening and horticulture before coming to this country, I used to do all I could to encourage the blue bird, of which there were a great many in that vicinity, to nest near my truck gardens. The English sparrow was at that time making a general invasion and monopoly of the country, thereby driving the blue birds from their usual haunts. By placing boxes, such as are suitable for their nesting, around the edges of my vegetable field I found every one of them inhabited by these little friends. The sparrow insists upon inhabiting boxes or receptacles near a human habitation, but the blue bird will nest in any box or cavity such as, for instance, where a woodpecker has formerly had its habitation. While these little friends do not inhabit this southern country, and I must say I miss them very much, I find numerous other varieties of birds from the North here during our winter months. Much as has been written both for and against the English sparrow, but from years of experience and close observation my impressions are strongly in his favor. The complaint is made that the adult sparrows are grain eaters, and that they feed only their young on insects. Of course this is not so, but even if it were, they rear

such a number of broods that they are busy during the greater part of the year carrying and feeding them insects; especially is this so here in the South where Winter interferes but little with their brooding season.

I think, judging by their number, that every wren in the United States winters in South Florida. I have seen these little fellows by the hundreds throughout our pine woods and fields in the Winter season.

Robins also make this their home, besides many other northern birds, during the Winter, and as this is the season of the year that we grow our vegetables, they are a very useful and necessary adjunct to our success. We should, therefore, do all we can to encourage them to stay near our vegetable gardens. Shrubs and trees, such as are apt to attract birds, should be planted, or if already at hand, should not be destroyed. Elders often feed large numbers of birds and the small wild fig grown upon what is locally known as the wild rubber tree, is greatly sought after by all kinds of birds. Dog-wood and wild grapes also have a tendency to draw them from outlying districts. Probably nothing surpasses the mulberry for alluring birds for this purpose. There are a number of early bearing varieties of mulberries that can be planted and many of our tropical fruits, such as the mango and surinam cherry, are much sought after by these little friends. Woe be to the man who is so avaricious as to shoot a bird which pilfers a few of his fruits! Every time he kills one to save a few cents worth of fruit he is virtually destroying dollars. I was once tempted to shoot a lark that was caught pecking holes in half grown tomatoes; upon examining his stomach I found the heads of thirty-six cut worms therein. I have never shot a lark since that day nor permitted one to be killed on my place by any one else.

CHAPTER XXXVII.

SUMMARY.

SUITABLE finale for this effort would embody more thought and labor than one of the pioneer order can be expected to have at his command, but I deem a word in regard to the future development of this great country as at least not out of place. My prophecy is that this great Everglade district will not only develop into a most beautiful and prosperous country, but will in a short time prove itself *the* Eden of North America.

Imagine one solid body of rich soil, embodying several millions of acres of land, all under a natural system of sub-irrigation, surrounded by the tropical waters of the Gulf Stream and connected on all sides by numerous deep canals, fanned by the congenial warmth of the trade winds—a veritable giant greenhouse, basking under a Florida sun by day and under the dome of an Italian sky by night. With these prosperous conditions once exploited, backed by adequate capital, it will be easily possible to travel across the entire peninsula on beautiful, wide palm-lined boulevards in a few hours' time.

Come! O, come with me, down to the Everglades!

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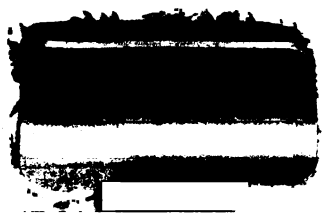
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